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JOHN EVANS, Esq., D.C.L., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same:—

FOR THE LIBRARY.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XXII, No. 95. Appendix ditto to Vol. XXI.

From the AUTHOR.—Kraniometrische Mittheilungen. By Dr. Moriz Benedikt.

From the BOARD.—9th Annual Report of the State Board of Health of Massachusetts.

From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscow. No. 4, 1878.

From Sir JOHN LUBBOCK, Bart., M.P.—The Cape Monthly Magazine for May, 1878.

From the EDITOR.—Revue Scientifique, Nos. 48 and 49, 1878.

From the EDITOR.—Revue Internationale des Sciences, Nos. 22 and 23, 1878.

From the EDITOR.—“Nature” (to date).

The following paper was read:—

On the BULGARIANS. By JOHN BEDDOE, M.D., F.R.S.

THE general interest felt just now in the ethnology of the Balkan peninsula must be my apology for a slight and imperfect paper, based partially on observations of my own, but chiefly on the elaborate papers of Kopernicki and Virchow, on the Bulgarian skull-form.

Nowhere in Europe, perhaps, are race-questions of more interest and importance than in Turkey; but notwithstanding much labour bestowed upon the subject, the anthropology of the Balkan peninsula remains to a great extent obscure. National antipathies, religious and linguistic differences, are strongly marked: blending of races by marriage and community of life-interests goes on very slowly, yet nevertheless even the numbers and boundaries of the several existing races are but imperfectly known. Boundaries, indeed, are in many cases quite undefined: thus it is impossible, in the Eastern half of the peninsula, to separate geographically the Bulgarians, Turks, Greeks, and Tartars; and the peculiarly atrocious and destructive character of the present war depends in part upon the dwelling together, in the same or in contiguous villages, of people who are or regard themselves as being of strongly contrasted nationality.

Moreover, our ignorance of the ethnological position of the earliest historical inhabitants is very profound. We may, indeed, pretty safely set down the modern Skipetar, Arnauts, or Albanians, as lineal descendants of the Illyrians and Macedonians. But what sort of people the Thracians were, ethnologically, is quite unknown. We can hardly suppose, however, that even the almost incessant wars and ravages which have torn and desolated the peninsula, but which have spared a remnant of the Macedonians, have been able to extirpate the blood of the Thracians; that the people of Haemus and Rhodope were utterly destroyed, while those of Pindus were able to preserve their individual nationality. Colonel James Baker mentions a peculiar tribe in Rhodope called the Erghné, supposed to represent the ancient Agrianes, a Thracian tribe; they might well repay investigation, and we might possibly even learn something thereby respecting the old Thracian physical type.

The prevailing race of the northern, north-western, central, and north-eastern parts of the peninsula, passes for Slavonic; and Slavonic it is in the most important point of language, which almost necessarily entails a certain common likeness as to politics and religion. But the Anthropologist desires to

look further, and to know something of the tribal differences of physical and moral character, and of ethnic descent. The true Slavs appear to have spread within the historical period, from a pretty large but still comparatively limited area in Eastern Europe, lying about the Carpathians and the Dnieper, northwards, southwards, eastwards, and westwards; and they retain to a great extent, wherever they have gone, the same physical characteristics. From Procopius's description, their ancestors would appear to have been strong men of good stature and fair complexion, but not so remarkable in these respects as the genuine Gothic race; as compared with whom they were evidently deficient in military qualities. Agricultural and pacific in their habits, as invaders they were remarkable for their ferocity and cruelty. The kind of volatile good humour which is consistent with, and passes suddenly and almost causelessly, into extreme savagery, and which is attributed now-a-days to the Cossacks, appears to have characterised the ancient Slavs; and the tortures and massacres which heralded their permanent settlement south of the Danube, may in part account for the fact that we find their own type predominating there to so great an extent: they generally exterminated or extirpated the prior inhabitants, whereas the Goths or Germans more often established themselves as a ruling caste.

Intellectually, they are capable, but lack steadiness, and perhaps require some admixture of alien blood, as in the case of the Bohemian Czechs, before they can achieve great things. Their cranial development is fine; and this brings me to the subject of their physical character. They are men of good stature, and moderately fair complexions. The Servians and Bosnians are tall, fine, square-built men. So far as I have seen or heard, blue or grey eyes and brown hair predominate over darker hues, and I have seen flaxen hair even among the Bulgarians, who are generally a darker race. It is said that as one proceeds farther south, in Servia, Bosnia, and Herzegovina, darker hues become prevalent, perhaps from the larger proportion of Illyrian or Wallachian blood. The form of the head resembles that of the northern Slavs: it is broad in all its dimensions, and I should call it elliptical, or even oblong, rather than oval—an oblong rounded at the corners. The most common form of face corresponds with that of the skull, and has a tendency to squareness. It is not prognathous, nor are the zygomatica broad in relation to the frontal region.

Now it is remarkable that though the Bulgarians speak a Slavonic tongue, with little or no Turanian element except what may reasonably be supposed, or positively known, to have been introduced by the Osmanli Turks, the description just

given does not generally apply to them. We know that the original Bulgarians, the original bearers of the name, were a tribe from the Volga region, whose name occurs in connection with those of the Huns and the Avars, with whom they seem to have had much in common, and who have always been considered as of Turkish or Finnish, or of mixed Turkish and Finnish blood, like the Hungarians. As the Avars, and subsequently the Magyars, ruled over the Slavs of Hungary, so did the Bulgars dominate the Slavs of the Lower Danube, standing to them apparently in the relation of a ruling caste. Ultimately the two elements, the Bulgar and the Slav, became welded into one, the speech of which was and remained Slavonic, and Slavonic of an older and less developed type than the Servian of to-day. Now it is extremely unlikely that a ruling caste race would have adopted the language of a subject one, unless either: 1st, it was much inferior in numbers; or, 2nd, in civilisation, or unless, 3rd, as Virchow suggests, it received a new religion with the language. The last supposition seems on the whole most probable: for we know that the Bulgarians received Christianity from Servian Apostles.

I have said, on the authority of Kopernicki and Virchow, who base their opinions on eleven skulls collected from various parts of Bulgaria by Kopernicki, and five by Scheiber, that the Bulgarian skull and face differs much from the Slavonic type. What is still more extraordinary is that they resemble neither the ordinary Finnish nor, still more certainly, the ordinary Turkish type. As Kopernicki says, they are neither Finno-Turkish, nor Slavish, but skulls *sui generis* and altogether peculiar. Virchow adds that there are points in which some of these skulls remind one, if of any others, of negro or rather perhaps of Australian skulls; for some of them have a degree of prognathousness unknown in Europe, and a depression at the root of the nose, a subglabellar depression or nasal notch, which we must go to Australia or to Melanesia to find paralleled.

By the kindness of Dr. Barnard Davis, who placed his rich collection at my service, I was able to see and measure a Bulgarian cranium and the cast of another (both originally from Kopernicki's collection); and to compare them with divers Slavish, Rumanian, Turkish, and Estonian skulls. The cranium is thought by Kopernicki to represent fairly what he calls the type, as distinguished from the mixed type, which by somewhat greater breadth and a shading off of its peculiarities, indicates the admixture of Slavonic blood. The cast seems to have been taken from a skull which was afterwards presented by Kopernicki to Virchow, and became the principal text of the elaborate paper of that illustrious anthropologist.

TABLE of Measurements of Skulls in Dr. Barnard Davis's Collection.

	Greatest Length.	Greatest Breadth.	Height from anter. edge of Foramen.	Least Frontal Breadth.	Zygomatic Breadth.	Height posterior edge of Foramen.	Index Breadth.	Index Height.	Index height (posterior).		
Bulgarian male, 28 ast., from Rustchuk ..	7.	5·4	5·1	3·75	5·15	5·25	77·	72·8	75·	Phenozygous	
Bulgarian from Bucharest (cast)	7·5	5·9	5·5	4·	5·5	5·9	78·6	73·3	78·6	Phenoz.	
Russniak (Galiz) ..	7·	5·8	5·6	4·1	5·	5·65	82·8	80·	80·6	Aphenoz	
Slovak (Neutra) ..	6·9	6·75	6·05	3·8	5·35	5·15	83·3	73·2	74·6	Phenozygous	
Croat ..	7·	6·	5·5	3·8	5·6	5·6	85·7	78·5	80·	Aphenoz.	
Turk (Sulina)	7·	5·8	5·4	4·	5·2	5·6	82·8	77·1	80·	Aphenoz.	
Estonian ..	7·5	6·6	5·4	4·1	5·4	5·7	74·6	72·	76·	Phenoz ?	

Scheiber's Bulgarian skulls: Br. Index, 80·1. Ht. Index, 78·9. Kopernicki, pure, 75·8, 78·1; mixed, 78·7, 77·3

Points most notable are the sloping away above and to some extent laterally of the forehead; the comparative elevation of posterior part of skull, so that the highest part is far abafit the sagittal suture, the larger portion of skull behind foramen magnum. The Estonian has this last point, but not the others, the upper part of the forehead in the Estonian being well developed.

Virchow's four points from meatus in BD skulls.

Bulgarian	103	106	110	117	Russniak	105	107	105	117	Turk	95	97·102
	97	106	112		Slovak	98	98	100	117	Estonian	98	102

Polish Jew

Czech

100

98

105

130

Polish Jew

96

103

105 ?

PROPORTIONS, measured from *Meatus Auditorius*, and reduced to Percentages, on *Virchow's Plan*.

	To Nasal Notch.	To Spine of Maxilla.	To Alveolar Border.	Chin.
Bulgarian (cast)	100	109	115·5	
Do. (skull)	100	103	107	114·5
Turk "	100	102	107	
Esthonian "	100	104	108	127·5
Polish Jew "	100	107	109	
Czech "	100	98	105	130
Slovak "	100	100	102	119
Russniak	100	102	100	112

To begin with the cranium—It has the following principal characteristics, all of which are considered by Kopernicki to belong to the type:—cylindrical form, moderate breadth (77), small frontal region sloping away rapidly above and to some extent also laterally, absence of frontal and parietal bosses, large occipital region, comparative elevation of posterior part of skull so that the highest part is far abaft the coronal suture. Observe, not one of these points is Slavonic. The narrowness of the forehead permits the zygoma to be visible when looked at from above, but there is not the same long flat-sided temporal region which is so common in the Irish and other British Celts. The nasal notch is deep, but not very conspicuously so, and the nose may have been well-formed. There is a moderate degree of alveolar prominence: the face is undoubtedly prognathous, but not markedly so; sufficiently so, that is, to distinguish it from a Russniak, Slovak, Czech, or Croat skull, but not to raise the least doubt of its being European.

The cast, however, is much more extraordinary in aspect; it has something of the savage, as Virchow expresses it. It is taken from a large dolichous skull; and exhibits the characteristic points of the other just described, some of them in a more marked degree. The posterior elevation is greater, the prominence of the upper jaw and alveolar border is something extraordinary in a European. The chin is absent from the cast, but is stated by Virchow to be very prominent. But the most remarkable thing is the depth of the nasal notch, and the form of the nasal bones, which start out quite horizontally, and indicate a patulous nose, tilted upwards to an extraordinary degree. This is the special feature that reminds Professor Virchow of Australian or Melanesian forms. Doubtless it is very exceptional even in Bulgaria: still, it would seem to be an

exaggeration only of a feature common there, if not positively typical.

Now what shall we say of Kopernicki's skull type, supposing it to be really the predominant one among the Bulgarians, which, in the defect of evidence to the contrary, we may assume it to be?

The deformity of the nose, which attains such portentous proportions in the cast just now described, does occur in a less degree even among pretty pure Slavs, such as the Poles. We all know the short snub nose of the gallant Pole, Kosciusko, and I don't think John Sobieski's was much handsomer. Among some Cossack tribes patulous uplifted noses are common; but the term Cossack is scarcely ethnological: some Cossacks are pure Slavs, others are Finnish or Tartar. The Cossacks of the Bulgarian coast, who are descended from non-conformists who fled from Russia to escape religious tyranny, and found an asylum under the Turks, are men of splendid physical development, with rather handsome features.

The skull form, however, must be traced, in the main, either to the pre-Bulgar inhabitants of Mesia and Thrace, or to the true original Bulgars. The former hypothesis is not very probable. It is true that the lowest or aboriginal stratum of a population is now known to be often the most persistent, those subsequently deposited being, to use geological language, more liable to erosion. But the extinction of the Thracian tongue, the fact that the Roumans, Wallachs, or Zinzars, who would be almost equally likely to retain some Thracian blood, exhibit a totally different type, and the general course of the history, so far as we know it, makes it unlikely that the Thracian type survives in force, unless in the recesses of Mount Rhodope.

We fall back, therefore, on the true Bulgars, the Turanian invaders who came from the region of the Volga, and who following or accompanying their Slavonic subjects or allies, occupied lower Mesia and parts of Thrace and Macedonia. If these Bulgars had been a Turkish tribe, we may suppose that they would have had the globular acrocephalic skull-form, with small occipital development, which characterises, I believe, all true Turks. But if they were Finns, or Finns under Turkish leaders, the difficulty would not be so insuperable—though the Finlanders are short-headed, the Esthonians are long-headed, and, for aught I know, the Mordwins, Cheremisses, and other Eastern Ugrians may be the same. The absence of frontal and parietal bosses, and the extreme lowness of the forehead, are not to be found in the Esthonians, so far as I know; but certainly these distinctions do not seem so absolutely to negative a Ugrian hypothesis, as the reasons I have given negative

a Slavic or Turkish one. My conjecture is, then, that this skull type is in the main Ugrian, and that the modern Bulgarians are at least as much Ugrian as anything else.

I have said that light colours of hair occur among them. But darker tints prevail; and my very small experience agrees with the extensive observation of Kopernicki, that the light hair is found in individuals of tall stature and more Slavonic aspect.

The *physique* of the Bulgarians is a difficult and obscure subject: their *morale* presents its own difficulties.

They differ from the Serbs in some points favourably; in more, perhaps, unfavourably; and though some of the worst faults are doubtless what naturally arise in a race which for hundreds of years has been subjected to another, they cannot all have originated in that way.

The heroic type, which appears among the Serbs, whether they be Mussulman, Rayah, or free Christian, and culminates in the splendid barbarians of the Montenegro, is absent here. The ballads and popular songs of a people may generally be taken in evidence to the ideal, and therefore in some degree to the character of that people. The Robin Hood of England, the Cuchullin or Diarmid of Ireland, the Cid Rodrigo of Spain, the Reduan of the Moors, the Antar of the Arabs, the Czar Lazarus of Servia, have all more or less of chivalry in their composition, and are not mere embodiments of force, like Marco the Bulgarian hero, who is represented as a ferocious brute, a murderer of women, and a traitor. Their religion, too, rises little above fetishism, and has little connection with morality. Manliness, generosity, truthfulness and respect for women, are scarcely to be expected of such a people. But industry is there, and ambition, industry and acquisitiveness to a degree not found among the Serbs; and the desire of knowledge is there, and the capacity to learn; and but for the forcible interference of Russia, and the vast amount of moral and physical evil brought about thereby, they might gradually, under an improving Government, have developed into better things than we can now expect to see in our own days.

DISCUSSION.

Dr. SEBASTIAN EVANS called attention to the fact that few nations had suffered more severely from the attacks of their neighbours than the Bulgarians. Basil II, Emperor of Constantinople, at the beginning of the eleventh century, had not only earned the title of Bulgaroktonos by his slaughter of an immense number of the male population, but had planted settlements of other races in their midst, whilst the incursions of other peoples from the North had

no doubt tended to infuse a further admixture of foreign blood. This circumstance would account for the occurrence of almost any type of skull among the Bulgarians, and materially increase the difficulty of determining the normal type.

Dr. BEDDOE, referring to the remarks of Dr. Sebastian Evans, said he did not think even the massacres of that most Christian Emperor, Basil, the Bulgarian slayer, could have materially altered or confused the physical type of the Bulgarians; the original stock would soon reassert itself. Though he had himself seen only one skull and one cast, that single skull was considered by Kopernichi to represent fairly the type of the eleven he had collected from different districts in Bulgaria, and Scheiber's five were said to be on the whole very similar. The custom in the Levant of keeping the head covered was adverse to craniological observations on the living, and he should not have supposed the Bulgarians he saw there to be so dolichocephalic as measurement showed them to be. In answer to Mr. Lewis, he had described the prevailing Slavonic form of head in the paper; it was usually rather short and broad, and elliptic or oblong rather than ovate. It was well figured in Fitzingei's excellent monograph on Avar skulls. The Slavs, where least mixed in blood, were a rather fair race, with hair varying from flaxen to deep brown; and he had seen some tall fair-haired Bulgars whom he could not have distinguished from Serbs. Prof. Virchow was now expecting a number of Bulgarian skulls, the material being only too plentiful just at present, and probably he would soon throw further light on the subject.

The following paper was also read.

ETHNOLOGICAL HINTS *afforded by the STIMULANTS in use among SAVAGES and among the ANCIENTS.* By A. W. BUCKLAND.

LAST year I had the honour of laying before the British Association and this Society my views with regard to the origin and development of agriculture, and that inquiry led me naturally to the consideration of those stimulants and fermented beverages in use in very ancient times, and still made and consumed by tribes in a very low stage of civilisation; for if we glance round upon races uninfluenced by European civilisation, we shall find that all, with the exception perhaps of two or three of the very lowest in the scale of humanity, have found means of manufacturing some sort of stimulating drink, or have discovered among the herbs or trees of their native land some leaf or root or fruit possessing stimulating and invigorating properties, capable of sustaining their strength, and increasing their courage in time of need. The doctors of civilised Europe have been indebted to rude aborigines for many valuable medicinal

discoveries, the importance of which can hardly be over-estimated; the invaluable Peruvian bark is too well known to require notice here, but the rude Australian aborigines have recently brought a new stimulant to the notice of the medical profession, which according to the reports given, seems likely to rival quinine in the future. This is the *Pitbury* (*Duboisia*) a plant chewed by the natives to give them strength and courage, the chewed portion being afterwards applied as a plaster behind the ear in order to increase the effect.*

Then we get the coca leaf of South America, eaten to increase strength and endurance,† and the Guarie leaf in South Africa, but these and many more rank rather as stimulating medicines than as *stimulants*, which term is commonly applied primarily to those fermented beverages which possess more or less an intoxicating property; nevertheless the use of these simple medicinal stimulants would seem to be the first instinctive effort of the savage towards supplying himself with something more than mere food, which although nauseous perhaps to the taste, he has found to produce an agreeable exhilaration, and an increase of strength and courage. The lower races do not appear to have gone beyond this, which is in truth only an animal instinct, since many animals resort to special plants for relief in case of sickness or wounds, which they do not habitually take as food; but no sooner do we find a knowledge of agriculture acquired by a race, than we also find them beginning to make and to use fermented liquors. Where the agricultural skill is of that imperfect and primitive type which consists in the cultivation of roots and fruits only, these fermented drinks are commonly mild in character, and composed of roots or herbs prepared in a peculiar manner; but wherever the cereals are cultivated, we generally find a sort of beer prepared from the principal cereal, and forming the chief beverage of the people,

* *Australian Plants*.—Baron Mueller has given, in an Australian medical journal, an account of his examination recently of the leaves of the “*Pitbury*,” said to be of marvellous power as a stimulant, and to be found growing in desert scrub from the Darling River and Barcoo to West Australia. He is of opinion that it is derived from the “*Duboisia Hopwoodii*,” described by him in 1861, the leaves of which are chewed by the natives of Central Australia to invigorate themselves during long foot journeys through deserts. The blacks, he says, use the *Duboisia* to excite their courage in warfare; a large dose infuriates them. The “*Sydney Herald*” is informed also that some dry leaves and small stems, said to come from far beyond the Barcoo country, and called “pitcherine,” are used by the aborigines as we use tobacco, for both chewing and smoking, and it is stated that a small quantity causes agreeable exhilaration, prolonged use resulting in intense excitement. It is observed that the blacks, after chewing the leaves, plaster the plug formed by so doing behind the ears, as they believe the effect is intensified thereby. See “*Colonies*,” June 9th, 1876.

† The coca would seem to be as pernicious in its effects as opium when indulged in to excess.

whilst fruit wines form the luxury of the rich, and infusions of plants and herbs unfermented, continue to be used as agreeable and refreshing or medicinal beverages. The great antiquity to which cereal agriculture can be traced, would naturally cause us to ascribe an almost equal antiquity to the manufacture of some sort of beer; and we find indeed that the ancient Egyptians, who excelled in agriculture, were also celebrated for a beer or barley wine, extolled by the Greek poets and historians under the name of *zythus*. Wilkinson tells us that "Diodorus though wholly unaccustomed to it, and a native of a wine-growing country, affirms that it was scarcely inferior to the juice of the grape," and Athenaeus says it was very strong and had so exhilarating an effect on the drinkers that they danced and sang and committed the same excesses as those who were intoxicated with the strongest wines. The manner in which this ancient beer was prepared is unknown, but from the testimony of Greek writers, Wilkinson thinks it must have been greatly superior to the beer or *boozza* of modern Egypt, of which he says, "the secret of preparing it from barley has remained from ancient times, but indolence having banished the trouble of adding other ingredients, they are contented with the results of simple fermentation; and bread and all similar substances which are found to undergo that process, are now employed by the Egyptians almost indifferently in making *boozza*."^{*} We may reasonably conclude that the barley employed in making the Egyptian *zythus* underwent some process analogous to malting, since we find that process employed by African races in the present day; but it seems certain that they knew nothing of hops, and Wilkinson says "they were obliged to have recourse to other plants, in order to give it a grateful flavour, and the lupin, the skerret, and the root of an Assyrian plant were used by them for that purpose."[†]

This mention of an Assyrian plant leads us to infer that the beer of Egypt was known also in Assyria, whilst the knowledge of Egyptian wheat and barley among the Swiss lake-dwellers, probably points to the extension of beer-making into Europe, and to the route by which it reached our shores. But in vine-growing districts, beer was quickly resigned in favour of the luscious juice of the grape, although probably retained among the peasantry, as at present.

Wilkinson gives us a passage from *Æschylus*—

" You shall be met by men whose lively blood
Dull draughts of barley-wine have never clogged"—

* Wilkinson's "Ancient Egyptians," Vol. ii, p. 171.

† *Ibid.*

to prove that the Greeks held beer in contempt, but it is also a proof that it was not unknown to them, and was probably the common drink of the lower classes.

Turning to the far East, we find a beer in use in China, in very ancient times, and still drunk there, made, not from barley, but from a peculiar kind of rice. The invention of this beer is assigned to the reign of the first emperor of the first dynasty, whose date is reckoned at B.C. 2217. The inventor's name (Y-tie) is given by Du Halde, who adds, "The emperor, when he had tasted it, said: 'This liquor will cause great troubles in the empire.' He banished the inventor, and forbade the manufacture, but the precaution was useless, the secret of the manufacture was preserved, and it still forms one of the delights of the Chinese."* The mode of preparing this rice-beer is not given, but like the *zythus* of Egypt, it was fermented by means of herbs. The Chinese also make a beverage from Indian corn or millet steeped in water, and it is from maize or millet that the African tribes compound that beer, which forms the chief beverage of all the various races of that great continent.

It might be supposed that America, the native home of maize, so freely used throughout Africa in the manufacture of beer, would present us with various and abundant liquors made from this important cereal, but the fact seems to be that the North American Indians knew no kind of intoxicating drink before the advent of Europeans; although the Indians of South America make a drink called Chicha, from maize, in the preparation of which there is a peculiarity highly interesting to ethnologists, since fermentation is induced by the grain undergoing the process of mastication by the women of the tribe. It is chiefly in Bolivia, among the Coyas, that this disgusting practice now prevails; but there is little doubt that the custom came to them from ancient Peru, and was formerly spread widely over the southern continent, pointing strongly to some early connection with the islands of the Pacific, where, among many of the groups, the only fermented drink is Ava or Kava, prepared in a similar way, by masticating the root of the long pepper. In some of the groups and in New Zealand, the masticating process has been discontinued, and the Kava is prepared by pouring water upon the root, whilst they roast, bake, or bruise the stalks, without chewing, before the infusion; they also bruise the leaves of the plant, and pour water upon them as upon the root.† This is the mode adopted in Otaheite, but as in South America the "Chicha" prepared in the primitive way is that most highly esteemed, so

* Du Halde's "History of China," Vol. ii, p. 283.

† "Inebriating Liquors," S. Morewood, 1824.

in the Pacific Islands, connoisseurs greatly prefer the chewed Kava to that which is simply steeped and bruised.* This singular mode of preparing liquors by mastication, is not, however, confined to the South Seas and South America, but we find it again in the Island of Formosa, where rice instead of maize or Kava is used in the preparation. Mr. Morewood, who collected a great deal of information upon the subject of fermented drinks, tells us that "the inhabitants of this island, particularly on the coasts, manufacture rice-wine, and distil a spirit from it, much in the same manner as in China; but the people of the interior, who are less civilised, make their drink in a very different way. Like their neighbours they plant rice and live upon the produce; but as they have no wine or other strong liquor, they make in lieu of it another sort of beverage, which if we may believe Georgius Candidius, a missionary, who resided amongst them for a length of time, is very pleasant, and no less strong than other wine. This liquor is made by the women in the following manner:—they take a quantity of rice, and boil it until it becomes soft, they then bruise it into a sort of paste, afterwards they take rice flour, which they chew, and put with their saliva into a vessel by itself, till they have a good quantity of it; this they use instead of leaven or yeast, and mixing it among the rice paste, work it together like bakers' dough; they put the whole into a large vessel, and after having poured water upon it, let it stand in that state for two months; in the meantime, the liquor works up like new wine, and the longer it is kept the better it becomes, and, as it is said, will keep good for many years. It is an agreeable liquor, as clear as pure water at top, but very muddy and thick towards the bottom. The latter, if water be not, as in some instances, added, is frequently eaten with spoons. When they go to work in the fields they take some of the thick or muddy part along with them in a vessel of cane, and in another some fresh water; these two they blend, and when the mixture has stood awhile, it serves to refresh them during the heat and labour of the day."† Thus we see that among aboriginal races, in a line across the Pacific, from Formosa on the East to Peru and Bolivia on the West, a peculiar, and what would appear to civilised races a disgusting, mode of preparing fermented drinks prevails, the women being, in all cases, the chief manufacturers; the material employed varying according to the state of agriculture in the different localities, but the mode of preparation remaining virtually the same, although, as might be supposed, the Formosans, dwelling so near the civilised

* The chewing of Kava is done chiefly by the women.

† "Inebriating Drinks," by S. Morewood, 1824, p. 130.

Chinese, have acquired a more elaborate method of preparing the grain by boiling and kneading the rice into a paste.

The Japanese make a strong beer, called *Sacki*, from rice, and the inhabitants of Java make two kinds of fermented liquor from the same cereal, the one called *Bodik*, made from rice boiled and stewed with a ferment called *Razi*, consisting of onions, black pepper, and capsicum ;* and the other called *Brom*, made from *Ketan* or glutinous rice, stirred with *Razi*, and buried for several months in close earthen vessels. This plan of burying liquor is also adopted in the case of the South American Chicha, which is sometimes put into a jar with a large quantity of beef, on occasion of the birth of a child, and left there to be consumed at his marriage feast. This admixture of meat with fermented liquor recalls forcibly a celebrated drink called *lamb-wine*, prepared by the Mandshur Tartars from the flesh of lambs, reduced to a kind of paste with the milk of their domestic animals, or bruised to a pulpy substance with rice ; it is drawn off after fermentation into jars, out of which they regale themselves, exporting the remainder into Corea and China.† But the most common drink of all the Tartar and Mongol tribes, from the most remote antiquity, is that called *Koumiss* or *Kumiz*, which is thus described in "The Book of Ser Marco Polo," translated by Colonel Henry Yule, C.B. :— "Fresh mare's milk is put in a well-seasoned bottle-necked vessel of horse-skin, a little *kurut* or some sour cow's milk is added, and when acetous fermentation is commencing, it is violently churned, with a peculiar staff, which constantly stands in the vessel. . . . After three or four days the drink is ready. *Kumiz* keeps long ; it is wonderfully tonic and nutritious, and it is said that it has cured many persons threatened with consumption ; tribes using it being remarkably free from pulmonary disease. . . . It has a peculiar fore and after taste. Rubruquis tells us it is pungent on the tongue whilst you are drinking it, but leaves behind a pleasant flavour, like milk of almonds. . . . The Greeks and other Oriental Christians considered it a sort of denial of the faith to drink *Kumiz*. On the other hand, the Mohammedan converts from the nomadic tribes seemed to have adhered to *Kumiz* even when strict in abstinence from wine. . . . The intoxicating power of *Kumiz* varies according to the brew. The more advanced is the vinous fermentation, the less acid the taste, and the more it sparkles. The effect, however, is slight and transitory, and leaves no unpleasant sensation, while it produces a strong tendency to refreshing sleep. . . . There was a special kind called *Kará Kumiz*, mentioned both by Rubruquis

* "Inebriating Drinks," by S. Morewood, 1824, p. 130.

† *Ibid.* p. 69.

and in the history of Wassaf. It seems to have been strained and clarified.* . . . The mare's-milk drink of Scythian nomads is alluded to by many ancient authors. But the manufacture of Koumiz is particularly described by Herodotus, who says: "The (mare's) milk is poured into deep wooden casks, about which the blind slaves are placed, and then the milk is stirred round. That which rises to the top is drawn off, and considered the best part; the under portion is of less account."† Perhaps Herodotus was mistaken about the wooden tubs; at least, all modern attempts to use anything but the orthodox skins have failed.‡

The "Kurut," used to produce fermentation, is made, according to Rubruquis,§ from the milk that remains after the butter has been made, which they allow to get as sour as sour can be, and then boil it. "In boiling it curdles, and that curd they dry in the sun, and in that way it becomes as hard as iron slag, and so it is stored in bags against the winter. In the winter when they have no milk they put that sour curd, which they call *Griut*, in a skin and pour warm water on it, and then shake it violently till the curd dissolves in the water, to which it gives an acid flavour; this water they drink in place of milk. But above all things they eschew drinking plain water."||

This *Griut* is still made in the same manner, but sometimes of the refuse from the distillation in making milk arrack, and sometimes also from ewe's milk. The Afghans make a drink similar to Koumiss from ewe's milk, and there would seem to be a trace in our own land of a similar liquor, for in "The Transactions of the Devonshire Association for 1877," there is a description of what is called "White Ale," which is said to have been a common drink until recently in the South Hams of Devon and in Cornwall; this is known also by the name of "St. Barnaby's cow's thick milk," and is supposed to be the same as "Grout Ale," spoken of by Bishop Kennet, because the ferment used in its manufacture is still called Grout.¶ This ale although made, according to Boorde (1511-1549), of "malt and water," with the peculiar ferment called "Grout" would yet seem, from the traditional name of "thick milk" given to it and from the name of the ferment employed, to have been derived originally from the Tartar Koumiss.

* The book of "Ser Marco Polo," translated and edited with notes, by Col. Henry Yule, C.B. Book I, cap. 53; note 1.

† Rawlinson's "Herodotus," iv, 2.

‡ The Kaffirs now sometimes use calabashes and baskets, whilst the Europeans at the Cape employ large earthenware jars for this sour milk.

§ A Monk sent as Ambassador to the East by Louis IX, in 1253.

|| "Marco Polo," Book i, cap. 54; note 5.

¶ Grout means both powdered meal, used in porridge, and a ferment in brewing.

This drink of sour milk, which now seems confined to the Tartar races in Asia, appears again among the Kaffir tribes in South Africa, by whom it is prepared in a very similar manner, and carefully stored in skin bags which are placed under the guardianship of one man in the village, no woman being allowed to touch them. In what way the Kaffirs became possessed of the secret of making this famous Scythic beverage we do not know. As a race they have very evidently come from a more northern land than that which they now inhabit, but it seems difficult to trace among them any Scythic affinities; nevertheless we find them also making and using another famous ancient northern beverage, mead or honey beer, called by the Bachapins "boíalloa.* This mead is fermented by means of the young brood, which I am informed is sometimes chewed to hasten the process, but this is not mentioned by travellers, and may be a misapprehension. Mead is also used by the natives of the neighbouring island of Madagascar, and Poncet tells us that it is the chief drink of Ethiopia; but in the mead of Ethiopia honey forms only *one* of the ingredients, the manufacture of this drink being thus described: "The barley which forms the basis of it is malted to a certain degree, and then dried as we do coffee, and pounded fine, while an indigenous root called *taddo* is bruised and mixed with the barley. This differs from the mead of the Kaffirs, which consists only of the fermented honey and water, and thus probably resembles more nearly the Scandinavian drink, since the northern nations could hardly have possessed grain in sufficient quantity to employ it in the making of mead."

In Russia† at the present day mead is much used, and is of two sorts, red and white, the former being coloured by the juice of cranberries, strawberries, raspberries, or cherries. It was, as we know, a favourite beverage in Britain in Anglo-Saxon times, and was known to the Greeks and Romans under the name of Hydromel.

Wulfstan, when he navigated the Baltic as far as Prussia in the eighth century, remarked that the people there brewed *no ale* because they had such plenty of honey, which was also remarked by Pythias many centuries before, who says that *mead* was the common drink of the meanest of the people, while the rich drank mare's milk, or perhaps a spirituous liquor prepared from it.‡ These two beverages thus brought under considera-

* Mead is also made by the Hottentots, who add to the honey the root of an umbelliferous plant called "Moor-wortel." See Thunberg.

† Quass, the ordinary drink of the Russian peasants, is made from barley and rye-malt and rye-meal stirred into warm water. "Inebriating Drinks," S. Morewood, p. 258.

‡ "Inebriating Drinks," S. Morewood, p. 435.

tion together, as commonly used by the northern nations of Europe and Asia, and still both drunk by the Kaffirs in South Africa, do not appear to have been known to the Ancient Egyptians, for although honey was highly prized and used as an offering to the gods, it was, we are told, scarce in Egypt because of the lack of flowers, so that they often rowed their bees down the Nile to collect food,* and the Egyptians being an agricultural rather than a pastoral people, it was natural that grain should form the basis of their ordinary drinks. It is possible also that religious prejudices may have prevented the use of milk as a common drink; but in India, where the cow is a sacred animal, there seems to be a trace of the time when they brought from their northern home the knowledge of the Scythic *Koumiss*, in the fable of the churning of the ocean for the water of life, but it is Soma wine, the juice of the *moon-plant* (*Asclepias acida*), which is so highly praised in the *Vedas*.

Writing upon this subject Mrs. Speir says: "Indra," it is said, "found this treasure from heaven, hidden like the nestlings of a bird in a rock, amidst a pile of vast rocks enclosed by bushes." The manufacture of this sacred drink is thus described: "The stalks are bruised with stones, and placed with the juice in a strainer of goat's hair, and are further squeezed by the priests two fingers, ornamented by rings of flattened gold. Lastly, the juice, mixed with barley and clarified butter, ferments, and is then drawn off in a scoop for the gods, and a ladle for the priests, and then they say to Indra, 'Thy inebriety is most intense, nevertheless thy acts are most beneficent.' This Soma wine formed the chief offering to the gods; the plant was sought with care by moonlight, and brought home in a cart drawn by rams. In one of the hymns of the *Rig Veda*, Indra is addressed as 'Drinker of the Soma juice, wielder of the thunder-bolt, bestow upon us abundance of cows with projecting jaws.'"†

From the importance assigned to the Soma, Mrs. Speir argues justly that we may determine the locality of the Hindus at the time of the *Rig Veda*; she says:—"The Soma is a round, smooth, twining plant not to be found in rich soils, as we learn from Dr. Royle, but is peculiar to the mountains in the west of India, the desert to the north of Delhi, and the mountains of the Bolan Pass. The *Rig Veda*, therefore, could not have been composed upon the Ganges.‡ But there are other points of peculiar interest with regard to this subject. Indra, the great nature-god of the Hindus, is connected, Mrs. Speir tells us, with the horse sacrifice in honour of the sun, which is regarded as a trace of

* See Wilkinson's "Ancient Egyptiana."

† See "Life in Ancient India," Mrs. Speir, pp. 52; *et seq.*

‡ *Ibid.* p. 55.

the Scythic origin of the Hindus, but the Soma so especially dedicated to Indra, is not only sacred to the moon, but was later confounded as a deity with the moon. It would seem therefore as though we saw in this the blending of the new worship of the invaders, with the older rites of the aboriginal moon dynasty, whilst the difference in the manufacture of the sacred Soma wine and the mystic *amrita* is also worthy of notice. In the former the process is analogous to the manufacture of Kava in those islands in which the dawn of civilisation has done away with the masticating process; in the latter the agitation of the ocean by means of the mountain *Mandar* used as a churning staff, or as the fire-churn, and the rising of the precious liquor to the surface, remind us forcibly of the Scythic *Koumiss*, whilst the admixture of barley and clarified butter with the Soma wine would suggest that this famous liquor was originally only a modification, necessitated by circumstances, of the beer and *Koumiss* of the north, the Soma being employed at first as many other plants have been employed, simply as a ferment, but manufactured afterwards in the mode adopted by the natives before the Aryan invasion, with the addition of the ingredients familiar to the invaders in their northern home. Soma wine was, however, a sacred drink, and the Institutes of *Menu* give us three other kinds of inebriating beverages in use among the Hindus: one made from the dregs of sugar, another from bruised rice, and a third from the flowers of the *Madhuca*, which latter is still made by the Bheels, who are supposed to represent an aboriginal race.*

Palm wine, *tari*, the original of the familiar *toddy*, is a favourite beverage in all countries wherein the palm-tree flourishes. Herodotus tells us that in the time of Cambyses (B.C. 529) the Syrians were well skilled in the manufacture of palm wine, and Strabo says that in Arabia-Felix, besides the husbandmen, there were many who made palm wine which was much used by the inhabitants, and it would seem that notwithstanding the prohibition of the Prophet, inebriating drinks are still made in Arabia, for Niebuhr says that in many parts of Arabia the Jews made wine and distilled brandy, whilst in other places a sort of beer, something like the Egyptian *curmi*, was brewed, which received an agreeable taste from an infusion of a grey herb called "Schebe."†

The Bolgars make a drink from fir-trees, also drink Hydromel; and many other fruits, roots, and grasses ‡ have been used in

* The Afghans make a strong drink from ewes' milk, and in Iceland they put whey in barrels and drink it after fermentation. See Morewood.

† "Inebriating Drinks," S. Morewood, p. 55. *Ibid.* p. 265.

‡ The Kanstachatkans make a spirit from a grass called "Stalkaia-kava."

various countries in the manufacture of fermented beverages, but the only one deserving special mention here is the *pulque* of Mexico, made from the *agave* or American aloe, which like the Indian Soma wine was a sacred liquor, but like the Kava of South Seas was also the common drink of the people.

As before noticed, the Red Indians had no fermented drink, but Schoolcraft says : "It is well attested that the Aztecs and other Mexican and Southern tribes had their pulque and other intoxicating drinks, which they possessed the art of making from various native grains and fruits. But the art itself, with the plants employed, was confined to those latitudes, and there is no historical evidence to prove that it was ever known or practised by the tribes situated north and east of the Gulf of Mexico."* This absence of intoxicating beverages among the Red Indians would militate against the theory of their Asiatic origin, and equally against the unity of race of the whole continent, as the fondness for intoxicants exhibited by these tribes since the introduction of the spirituous liquors of the White man, proves that they would have continued to make and use the beverages of their ancestors or of their neighbours, had they ever attained to a knowledge of them ; therefore if they were originally of Mongolian origin, they must have separated from the parent stock before the latter had become a pastoral people delighting in that fermented milk which has extended over northern Asia, and reached to Iceland and South Africa, and which probably had a wider range still before it was superseded by drinks prepared from fermented grain of various kinds among agricultural races, and by *wine*, that is, the fermented *juice of the grape*, among more highly civilised peoples.

Grape wine, which has become so familiar to us in modern times, dates back, as we all know, to the time of Noah ; nevertheless its range in ancient times seems to have been somewhat circumscribed, embracing only Western Asia, Egypt, Greece and Rome. Even where grapes grew abundantly they were not always employed in the manufacture of wine ; thus in China, where grapes undoubtedly grew of old, wine, even if made at all, which is doubtful, never attained popularity, and by the decrees of various emperors, the vines have been extirpated ; and we learn from the "Book of Ser Marco Polo" that, "the founder of the Ming dynasty in 1373 accepted an offering of wine of the vine from Thaivnan, which was celebrated for its vines, but prohibited its being presented again." We are told also that although there are excellent grapes in many parts of Ethiopia, no wine is manufactured, mead being the chief drink. But the juice of the

* "The Indian in his Wigwam." Schoolcraft, p. 358.

grape was undoubtedly known and esteemed in very ancient times among the Hebrews, Egyptians, Assyrians, Persians, Greeks and Romans. "Sir James Malcolm says in his account of Persia that the natives have a tradition that wine was discovered by their King Jemisheed through accident. This monarch had an extraordinary fondness for grapes, and placed a quantity in a vessel in a cellar for future use. Some time after, the vessel being opened, the grapes were found to have fermented, and were supposed to have become poisonous. A lady of the Harem, tired of her life, from severe nervous headache, drank some of the supposed poison, slept, awoke well, and afterwards finished all the poison; the monarch took the hint, and improved upon it for his own advantage."*

It is worthy of remark that the wine of the East, like the Koumiss of the Tartars, was stored in skins, and in this form was first introduced into Greece and Rome, and so strong is the force of an acquired taste, that when earthen amphore, such as were used in Egypt and in China, were adopted, they invariably smeared them internally with resin and other substances, to impart to the wine as much as possible the flavour derived from the original skin bags; and it would appear that this custom is still retained in modern Greece, for Redding says, "The modern traveller in Greece cannot drink a small quantity of the wine there without water, for the intense headache it excites, owing to the infusion of resin, pitch, and other similar ingredients; substances of the same nature as were infused in the Augustan age in the dry as well as other wines."†

Pliny enumerates fifty kinds of generous wines; thirty-eight kinds of foreign wines; seven kinds of salted wines, that is, must mixed with sea-water; eighteen kinds of sweet wines, including raisin wine and hepsema; three varieties of second-rate wine; and sixty-six varieties of artificial wine.‡ Of all these, the wines perfumed with myrrh were the most esteemed by the Romans. The artificial wines were formed of must, mixed with all sorts of garden plants, such as radishes, asparagus, parsley, wormwood, &c., &c. Most of these were used medicinally, and it may be observed that the unpalatable wormwood is still used to make the favourite liqueur of the French, *absinthe*. In Egypt also, figs, pomegranates, myxos, and other fruits were used for making artificial wines, and herbs were added for flavour and for medicinal qualities,§ and, in truth, the use of

* Redding "On Modern Wines," p. 33.

† *Ibid.* p. 18.

‡ Pliny, Book.xiv.

§ See Wilkinson's "Ancient Egyptians."

herbs as medicines seems to lie at the root of all the beverages of the ancients and of modern savages.

Time will not permit me to enter into the most interesting subject of narcotics and poisons used by way of ordeal, nor can I here treat fully of the various unfermented beverages used in various parts of the world, such as the tea of China and Japan, the maté of South America, the liquor made from guarana bread in Brazil, the chiocolatl of Mexico, the coffee of Arabia and Africa; but in summing up what we have gathered from the imperfect records of travellers upon the stimulants above noticed as in use among the natives of various lands, we may, I think, conclude that among the lowest races roots and leaves are commonly chewed as stimulants, and no intoxicant is known. Thus we have the *Pitbury* in use among the savage Australians. The Kon or Canna-root (*mesembryanthemum emarcidum*) chewed by the Bushmen and Hottentots, of which Thunberg says: "The Hottentots come far and near to fetch this shrub, with the root, leaves and all, which they beat together and afterwards twist them up like pig-tail tobacco; after which they let the mass ferment and keep it by them for chewing, especially when they are thirsty. If it be chewed immediately after fermentation it intoxicates." Adding, "the Hottentots who traverse the dry carrow-fields (*Karoo*) use several means, not only to assuage their hunger, but more particularly to quench their thirst. Besides the above-mentioned plant called Kon or Gunna, they use two others, namely, one called Kameká or Barup, which is said to be a large and watery root; and another called *Ku*, which is likewise, according to report, a large and succulent root."* The use of the areca or betel-nut with lime, in New Guinea and many islands of the Eastern Archipelago, is well-known, and a similar custom prevails in South America, for Bollaert says of the Indians of Tarapaca: "With a little toasted maize and coca, they will travel for days over the most desert tracks. The coca is masticated with Kipta, an alkaline ash mixed with boiled potato."†

It may be observed that the use of leaves in this manner is a necessity in hot climates where water is scarce, and which even when obtainable is frequently unwholesome, and it is to this circumstance probably that we must attribute the universal use of stimulants. Moses, when he cast into the bitter waters of Meribah a branch of a certain tree, did that which the natives of Africa and other desert lands have been taught by necessity to do, that is, to render brackish and unwholesome water drinkable, if not palatable, by an infusion of herbs; and this was

* Thunberg's "Account of the Cape of Good Hope."

† "Antiquities of South America," W. Bollaert, p. 250.

doubtless the origin of the various teas consumed by natives of Asia, Africa, and America, one only of which has become a favourite European beverage, although we have adopted coffee, chocolate, and cocoa from their original consumers. To this also may be traced the second stage in the history of stimulants in which the chewed leaf or root being infused in water a slight fermentation ensues, and a beverage is produced which is mildly intoxicating, as the Kava of the South Seas. Among agricultural races the *grains* cultivated are pounded and infused instead of the leaves and roots of an earlier stage, the latter, however, being retained to flavour and ferment the various beers thus made; hence, although hops were unknown to the ancients, various plants supplied their place with regard to flavour, and although they do not appear to have had the same efficacy as a preservative they were found useful in aiding fermentation. Hence we are told, "the Kaffirs have no yeast, but employ a rather curious substitute for it, being the stem of a species of ice plant, dried and kept ready for use;*" whilst the Chinese hop is a preparation containing leaven, so that its use causes fermentation. Among pastoral tribes the milk of their flocks and herds became their natural drink, and the readiness with which this ferments, and the impossibility of keeping it long fresh, led to its use in the form of a powerful stimulant, whilst in a higher stage of civilisation the juice of the grape, either grown or imported, gradually superseded the more primitive beverages. But in all these stages may be traced the lower stage through which each has passed; thus the chewing of leaves as practised by savages, either to quench thirst or produce strength and courage, is retained among agricultural races chiefly in the form of medicine, a peculiar efficacy being attributed to the process of mastication; hence in Central Africa the root of the Kala is chewed and applied to a wound as an antidote to the poisonous N'gwa grub. The fermentation of grain was probably at first produced by mastication, in the same manner as the Kava of the South Seas; but this process is now confined to the Chicha of South America, and the rice beer of Formosa, as before pointed out, whilst the healing and invigorating properties attached to various plants, as discovered in most instances by savages, have led to their medicinal use in all ages; and upon the birth of religion caused the deification of various plants, and led later to their dedication to special gods, and to their superstitious use in religious ceremonies, culminating in the universal worship of Bacchus, the personified vine, in civilised Greece and Rome. The health-giving properties attributed to the several drinks we

* Wood's "Natural History of Man" (Africa), p. 163.

have described, imparted a religious character to their use, so that all drunken orgies, from the Kava-drinking of the South Seas to the feasts of the civilised Greeks, were commenced with libations to the gods. Hence, too, arose various ceremonies, one of which, that of the drinking of healths at feasts, has survived to our own day, hence also certain prohibitions became attached to the use of fermented liquors. The priests of Heliopolis and other places were forbidden the use of wine; women among the Kaffirs may not touch the milk bags, and during the early period of Roman History they were not allowed to drink wine. Even the shape and material of the vessels used seems to have been regarded as important. In most ancient nations the drinking-cups were pointed in form, that they might be emptied at a draught, and the Kava of the South Seas is still drunk from pointed cups of banana leaf, which are emptied and thrown down to be re-filled.

Perhaps the leaf was considered the proper receptacle for the produce of the plant, for we find that even where pottery was abundant, leaves were employed to make drinking vessels. Pliny tells us that the Egyptians plaited the leaves of the Colocasia with such skill as to make use of them for drinking vessels: in many parts of Africa grass baskets are still manufactured to hold the beer and milk of the natives, and "finely wrought reed baskets, in various colours, capable of holding water,"* have been found with mummies in Peru, whilst perhaps the finely plaited basket-work surrounding the delicate porcelain cups of China may be a survival of the same custom.

I have said nothing of the art of distillation, because that is comparatively modern. Its origin is usually ascribed to the Arabs, but it was undoubtedly early known to the Tartars, who from their Koumiss extracted a spirit called "*Araka*," conjectured by some from its high antiquity to be the true source from whence the Indian arrack derives its name.† Pliny too is supposed to refer to this art in the passage "Oh wondrous craft of the vices! by some mode or other it was discovered that water also might be made to inebriate."‡ Zozimus also in the fourth or fifth century is said to have figured a still; but whatever may be the antiquity of the art, it is the disgrace of our modern civilisation to have introduced among savage races that pernicious fire-water, which in so many instances has supplanted the mildly fermented stimulants to which they have been accustomed, and has become one of the chief factors in their rapid extermination.

* Bollaert's "Antiquities of South America," p. 157.

† "Inebriating Liquors," S. Morewood, p. 67.

‡ Pliny, N.H. Book xiv, p. 22.

DISCUSSION.

Dr. BEDDOE said, that in reference to Koumiss and its supposed anti-phthisical properties, he had once heard an amusing little speech from the great Skoda. A discussion was going on in the Vienna Medical Society, which somewhat reminded him of that famous one in the early days of our Royal Society. It was on the exemption of the Bashkirs from consumption, by reason of their drinking Koumiss; some explained it in one way, some in another. Then said Skoda, "Respecting these wretched Bashkirs, and how from phthisis, by reason of their Koumiss-drinking, altogether exempt they be; this night has very much been said, but for my part I most potently believe that, in addition to the other miseries of their God-forgotten condition, they not only from phthisis are not free, but from it altogether as much as we, if not even greatly more, do suffer."

The DIRECTOR read a paper contributed by Mr. SANDERSON on "Polygamous Marriages in South Africa."

POLYGAMOUS MARRIAGE among the KAFIRS of NATAL and COUNTRIES AROUND. By JOHN SANDERSON, Esq.

Having, a few years ago, been led to make some inquiry into the numbers of children, with their respective sexes, born among the Kafirs resident in Natal or the countries adjoining, it may not be without interest for this meeting that I should communicate the results. The mass of facts collected is too small to warrant any positive general deductions, but small as it is, it will not be altogether without value if it suggest some line of further investigation for those who may be enabled to pursue it.

Even in Natal, I need hardly say, no official statistics of this character are obtainable, and my information is, therefore, derived from inquiries among intelligent natives, whose replies, in reference to their own families, and those of their connections, were generally given so readily and precisely that I am prepared to accept them without hesitation, as fairly correct. One or two cases in which any doubt was exhibited as to the sex of the children, I have not taken into account at all.

The number of households to which the following figures relate is fifteen, in five of which the wives were two each; in four they numbered three; in two they were four; and in two they were five in number; while in the two remaining, the husband had six and eight wives respectively. It is to be noted, however, that in probably none of the cases can the number be

regarded as final ; by which I mean that so long as the head of the household was alive, the number of the wives or the children might be added to ; and my figures must, therefore, be taken as subject to correction, which would not apply to cases where, the husband being dead, the numbers were absolutely complete.

Of the fifteen households, two only had the children of each sex in equal number ; but the number of marriages in which this was the case was nineteen ; and taking individual families or marriages, the boys were in excess in twenty-five, while in ten their number was exceeded by the girls.

To look at the matter more in detail it may be advisable to set the figures forth at length, marking with a star each case where the child was known to be dead when the inquiry was made. The following households had—

TWO WIVES :

NTEMBA.

			Boys.		Girls.
First wife, b. g.	..	..	1	..	1
Second wife, g.g. b.b. g.b.	..	..	3	..	3
			—	4	—
			4	..	4

MPOPO.

First, b. g. b. g. g. b. b.* g.*	..	..	4	..	4
Second, g.* g.* g.* b. g.	..	..	4	..	1
			—	8	..
			8	..	5

UMANDHLOLE.

First, b. b. b. g. g. g.	..	..	4	..	3
Second (order uncertain)	..	..	2	..	1
			—	6	..
			6	..	4

MBONDWANA.

First, b. g.* b.* b. b. g.	..	..	4	..	2
Second, g. b. g. g. g.	..	..	1	..	4
			—	5	..
			5	..	6

NOKAKWA.

First, b. g.* b. b. g.	..	..	3	..	2
Second, b. g. g.* b.	..	..	2	..	2
			—	5	..
			5	..	4

Five households, having each two wives had, boys	28
girls	23
Total	51

We have here five households, in four of which the male births exceed the female, the boys being 24 in number, and the girls 19—an excess of more than 25 per cent. Of the ten wives, however, four have an equal number of children of each sex; with five, the boys preponderate, while one only has more girls than boys. One wife only of the ten has twins, and she has them at every birth; first two girls, then two boys, and finally a girl and a boy. In six out of the ten families a boy is the first-born; in three the first-born is a girl; in one case my informant was uncertain.

Coming next to the households in which the wives were three in number, of which there are four, we find

THREE WIVES.

NKUKWANA.

			Boys.	Girls.
First, b. g. b. g. b...	..	..	3	2
Second, b. g. b. b...	..	..	3	1
Third, g. b. ...	..	..	1	1
			<hr/>	<hr/>
			7	4

MTSHED.

			Boys.	Girls.
First, b. g. b. g. g...	..	..	2	3
Second, g. g. b. ...	..	..	1	2
Third, b. b. g. ...	..	..	2	1
			<hr/>	<hr/>
			5	6

NDONGA.

			Boys.	Girls.
First, g. b. g. g...	..	..	1	3
Second, b. g. g. ...	..	..	1	2
Third, b. g. b. g. ...	..	..	2	2
			<hr/>	<hr/>
			4	7

TONSI.

			Boys.	Girls.
First, b. b. g. b. b...	..	..	4	1
Second, b. g. ...	..	..	1	1
Third, b. g. ...	..	..	1	1
			<hr/>	<hr/>
			4	3
Four households, each three wives, had	boys	..	20	
	girls	..		20
			<hr/>	<hr/>
	Total		40	

In two out of the four households the boys are in excess; in the other two the girls preponderate, although, taking the whole of the families together, the numbers are equal. Four out of the twelve wives have equal numbers of boys and girls; four have

more girls than boys, and four have more boys than girls. In nine cases out of the twelve the first-born is a boy. No case of twins occurs in these twelve families.

We come now to two households in which there are four wives each. In one household the children of each sex are equal in number, eight and eight respectively; in the other the boys number seven, and the girls five. The sexes are equal in three families, and in five out of the eight the first-born is a girl. In these two households of four wives each, there is no case of twins.

The figures are as follows:—

FOUR WIVES.

NONJIA.

		Boys.	Girls.
First, g. b. g. b. g. . .	.. .. ..	2	3
Second, g. b. g. b. . .	.. .. ..	2	2
Third, b. b. g. . .	.. .. ..	2	1
Fourth, g. b. g. b. . .	.. .. ..	2	2
		8	8

MPOGOPOGO.

First, b. . .	.. .. ..	1	0
Second, g. b. g. b. . .	.. .. ..	2	2
Third, b. g. b. b. . .	.. .. ..	3	1
Fourth, g. g. b. . .	.. .. ..	1	2
		7	5
Two households (each four wives) had			
boys	..	15	
girls	..	13	
Total		28	

We have next two households of five wives each, that is ten wives, three of whom have an equal number of boys and girls, and one only has more girls than boys, the boys being in excess with six out of the ten. The same number, six, but not the same women, have boys at the first birth, girls being the first-born to the remaining four. Here again, out of forty-three births, we have no case of twins.

The following are the details:—

FIVE WIVES.

GEBUZA.

		Boys.	Girls.
First, b. b. b. g. b. . .	.. .. ..	4	1
Second, b. b. g. b. b. . .	.. .. ..	4	1
Third, b. b. g. b. g. . .	.. .. ..	3	2
Fourth, g. g. b. b. . .	.. .. ..	2	2
Fifth, g. b. g. b. b. . .	.. .. ..	3	2
		16	8

SUTSHANA.

		Boys.	Girls.
First, g. b. b. b.	..	3	1
Second, g. g. b. g.	..	1	3
Third, b. b. g. g.	..	2	2
Fourth, b. g. b. g.	..	2	2
Fifth, b. g. b.	..	2	1
		10	9
Two households, with five wives each, had	boys	26	
	girls	17	
			43
	Total		

I have particulars of but one household with six wives, three of whom have boys and girls in equal numbers, and present no case of girls in excess, and no case of twins, as will be seen from the following figures. In four instances out of the six the first child born is a boy:—

SIX WIVES.

DUBUYANA.

		Boys.	Girls.
First, b. g. b. g.	..	2	2
Second, g. b. g.* b.* b.	..	3	2
Third, b. g. b. b.	..	3	1
Fourth, b. b. g. g.	..	2	2
Fifth, b. g. g. b.	..	2	2
Sixth, g. b. g. b. b.	..	3	2
		15	11
One household with six wives, had	boys	15	
	girls	11	
	Total		26

The last household of which I have any details to lay before you is one which contained

EIGHT WIVES.

NYENGENYA.

		Boys.	Girls.
First, b. g. b.	..	2	1
Second, g. b. b. b.	..	3	1
Third, b. g. b. g. b.	..	3	2
Fourth, g. b. g.	..	1	2
Fifth, g. b. b. g.	..	2	2
Sixth, g. b. g.	..	1	2
Seventh, b.* b.* g.* g.*	..	2	2
Eighth, b. b. b. g. g.*	..	3	2
		17	14
One household with eight wives, had	boys	17	
	girls	14	
	Total		31

In four families out of the eight the boys are in excess, in two the girls are more numerous than the boys, the numbers being equal in the remaining two. Girls and boys are born first in an equal number of cases, and here again we have no case of twins.

The five families in which twins are reported are (with one remarkable exception) not included in the above figures. They are as follows:—

	Boys.	Girls.
Njwaini, b. g.	1	1
Ndangusa, g. g.	0	2
Loho, g.g.	0	2
Mkweba, g.* g.*	0	2
The exception is that of Ntemba, g.g. b.b. g.b.	3	3
	4	10

To sum up, and excluding the four families above named, in which twins occurred, and regarding which I have no further information, we have

Households	..	..	..	..	..	..	15
Wives	..	..	..	..	..	..	54
Wives having one child only	..	..	..	..	..	1	
" " two children	..	..	..	..	..	4	
" " three	..	..	..	..	..	10	
" " four	..	..	..	..	..	20	
" " five	..	..	..	..	..	15	
" " six	..	..	..	..	..	2	
" " seven	..	..	..	..	..	1	
" " eight	..	..	..	..	..	1	
" " boys and girls equal	..	..	..	..	19		
" " boys in excess	..	..	..	..	25		
" " girls	..	..	..	..	10		

Total number of children 219. Total number of boys 121. Total number of girls 98

Average children to household 14·6

Each wife has on an average, children 4·05

The first-born is a boy, in cases 32

 " " girl 21

The order is uncertain in 1

The record of deaths may be incomplete, but so far as it goes, it shows that out of fifteen households five have lost children, namely:— 5

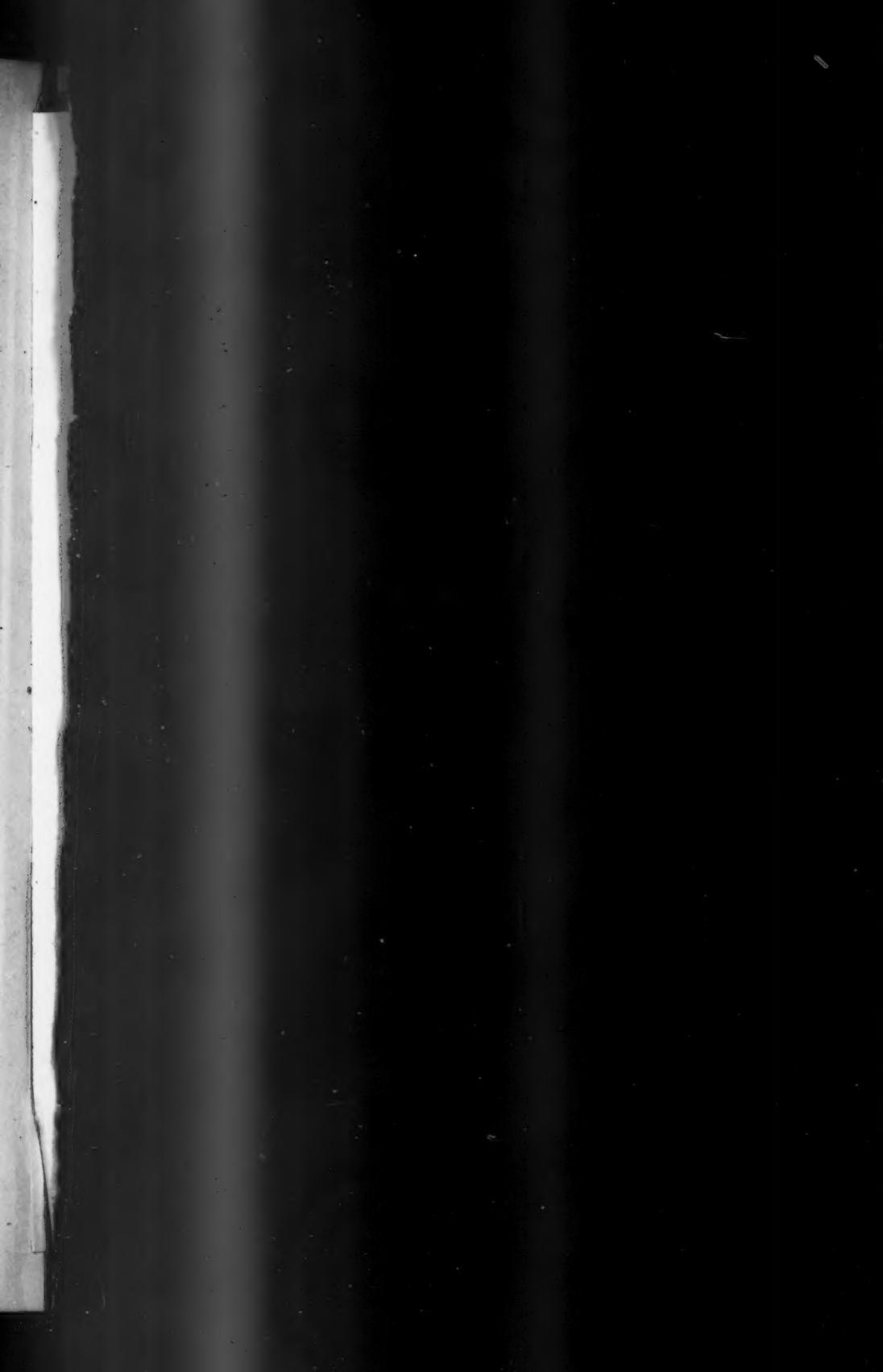
	Boys.	Girls.
Mpopo	1	4
Mbondwana	1	1
Nokakwa	0	2
Dubuyana	1	1
Nyengenya	2	3
	5	11

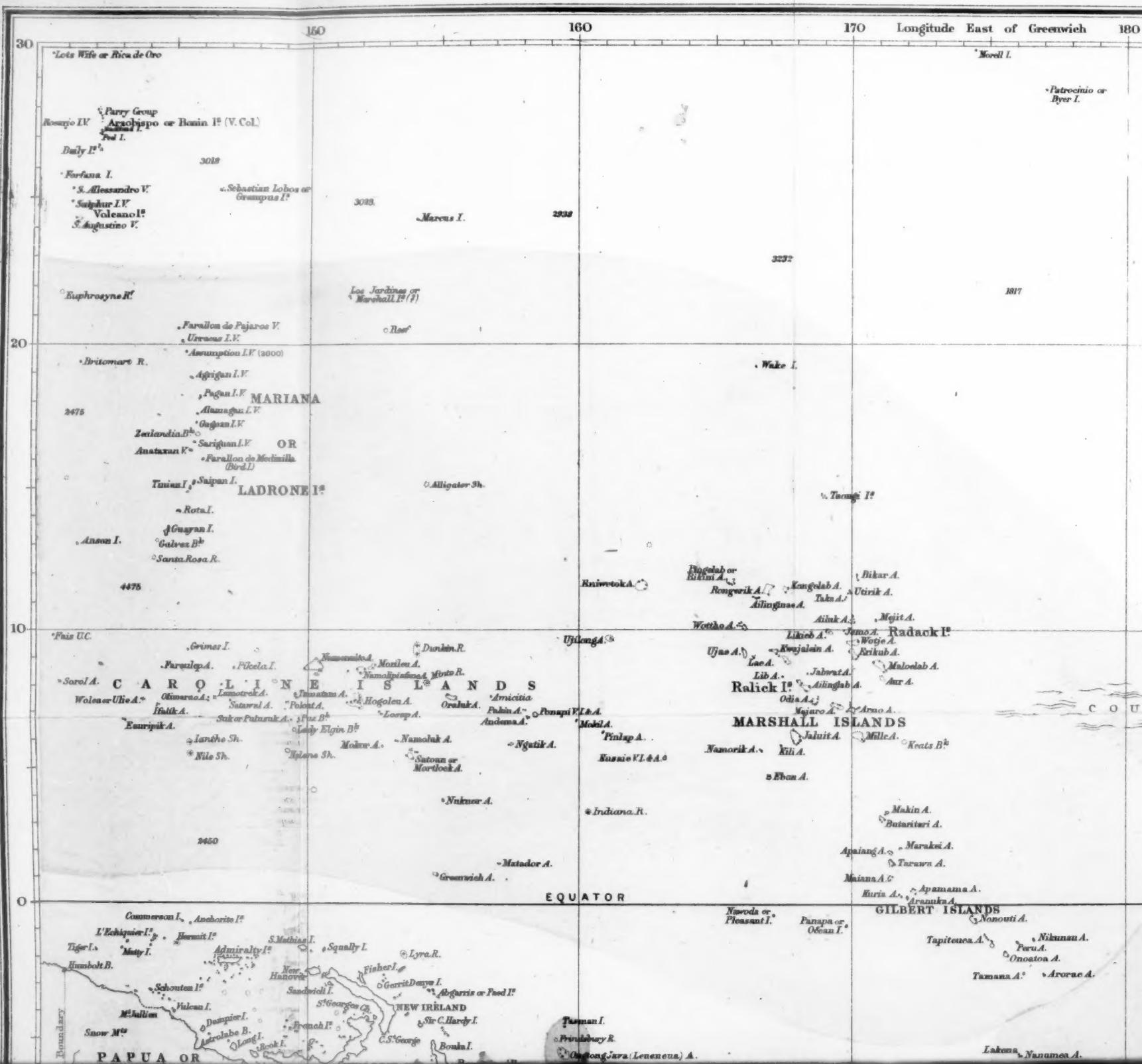
I have no figures of any value relating to monogamous marriages among the Kafirs. It will be observed that of the 54 women to whom the figures given relate, one only had twins, and as we have seen, she had twins at each of her three confinements. One native, whom I questioned on these subjects, remembered five cases of twins, and knew of others, the particulars of which he had forgotten. He had never known a case of triplets. In the case of twins, infanticide was formerly practised in the Zulu country, though, I am informed, not in Natal, the least and weakest being put to death. This was formerly the practice among the chiefs as well as the common people, the object, doubtless, being to keep up the strength of the stock, and the alleged exception in reference to Natal, in reality is only intended to apply to the country since it has been under British rule.

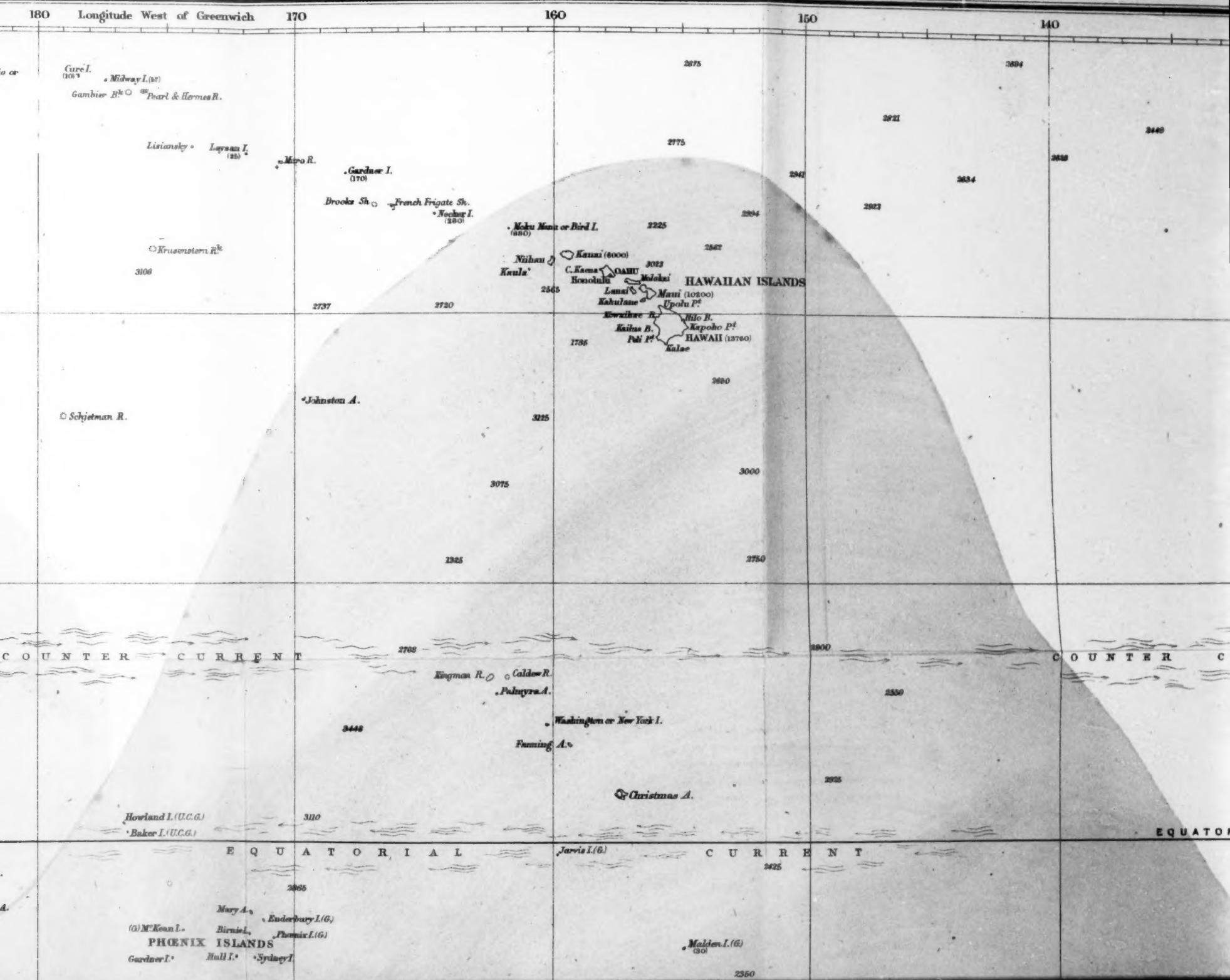
In concluding these imperfect notes upon a subject of considerable interest, I have only to express my regret that they should be so incomplete, notwithstanding my endeavours to enlist the aid of several missionaries, whose opportunities of collecting statistics were much better than my own. I am still, however, in hopes that I may be able to obtain, at some future time, figures which may afford a better basis for generalisation than the few data which I have had the opportunity of laying before you on this occasion.

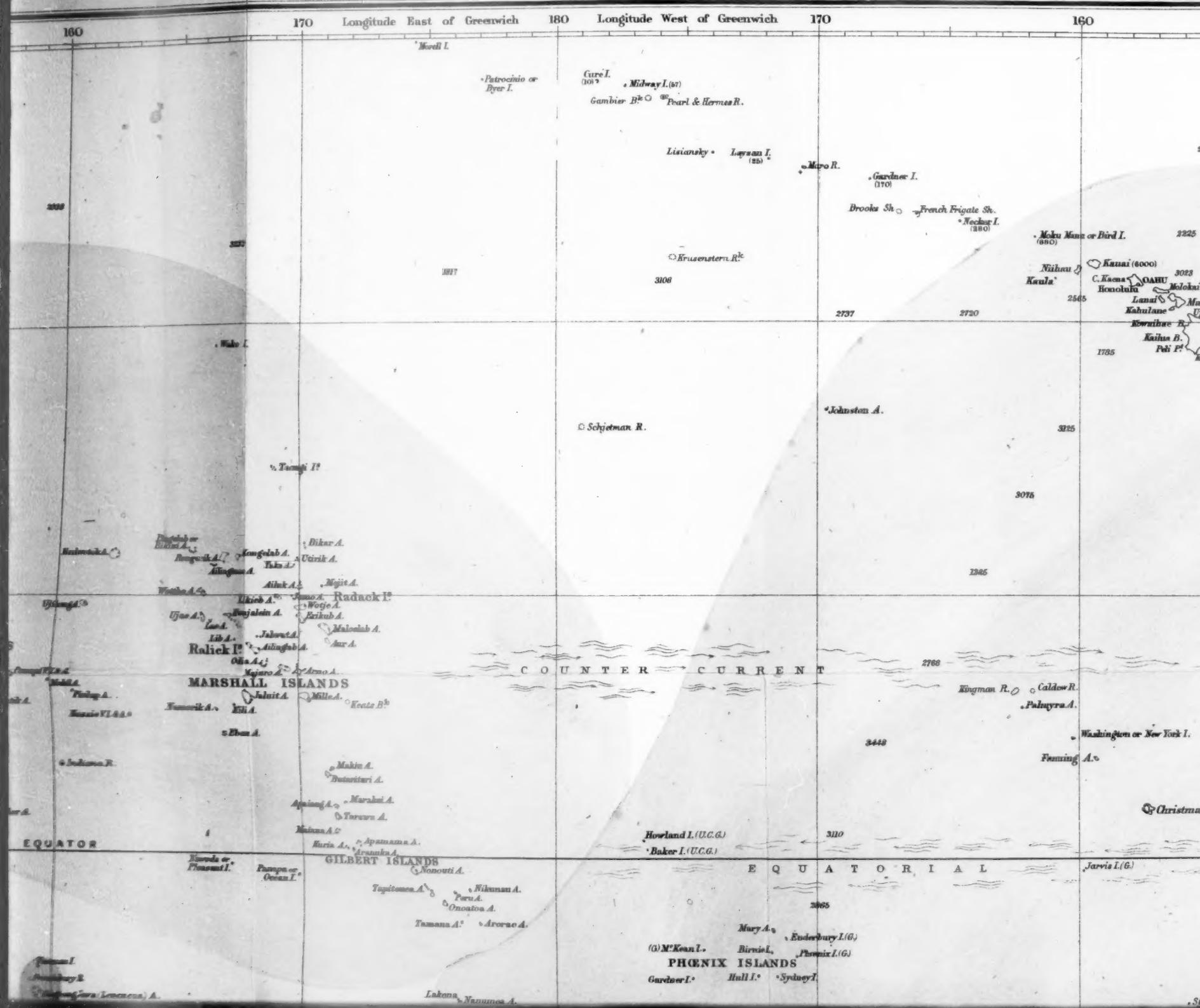
DISCUSSION.

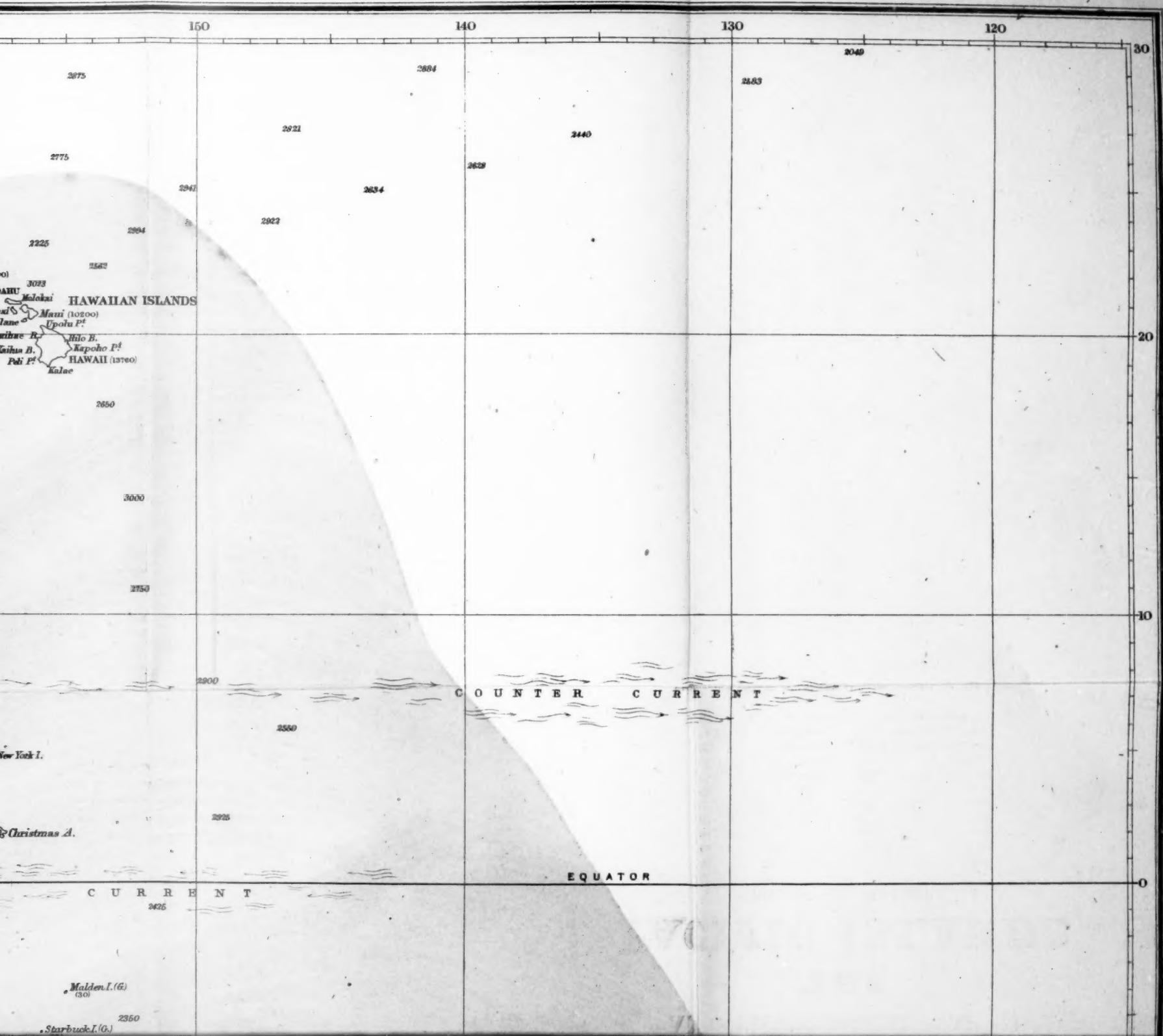
Mr. LEWIS thought the paper of great value, so far as it went, and hoped that they should receive more particulars on the same subject from the Author. There was an impression that polygamous marriages produced a larger number of female than male children, which this paper went to show to be erroneous. The analogy of our cattle, sheep, and poultry, would also go to show that impression to be erroneous, as they were particularly polygamous, yet produced equal numbers of each sex, our food supply consisting in fact of the superfluous males. It would be interesting to know, however, whether the mortality amongst male Kafirs was very much greater than amongst the females, because, if not, the births being equal and polygamy being the rule, many men must have no wives at all, which would lead to very unsatisfactory social conditions. It would also be well if the Author could state positively whether the births mentioned by him were all that had occurred in each family, or whether he had only given the numbers and sexes of children living at the time of his inquiry, or which had survived for some years the infant mortality which, as reported, was remarkably small, being possibly such as to alter any conclusions that might be drawn from the proportions of sexes and other particulars given.

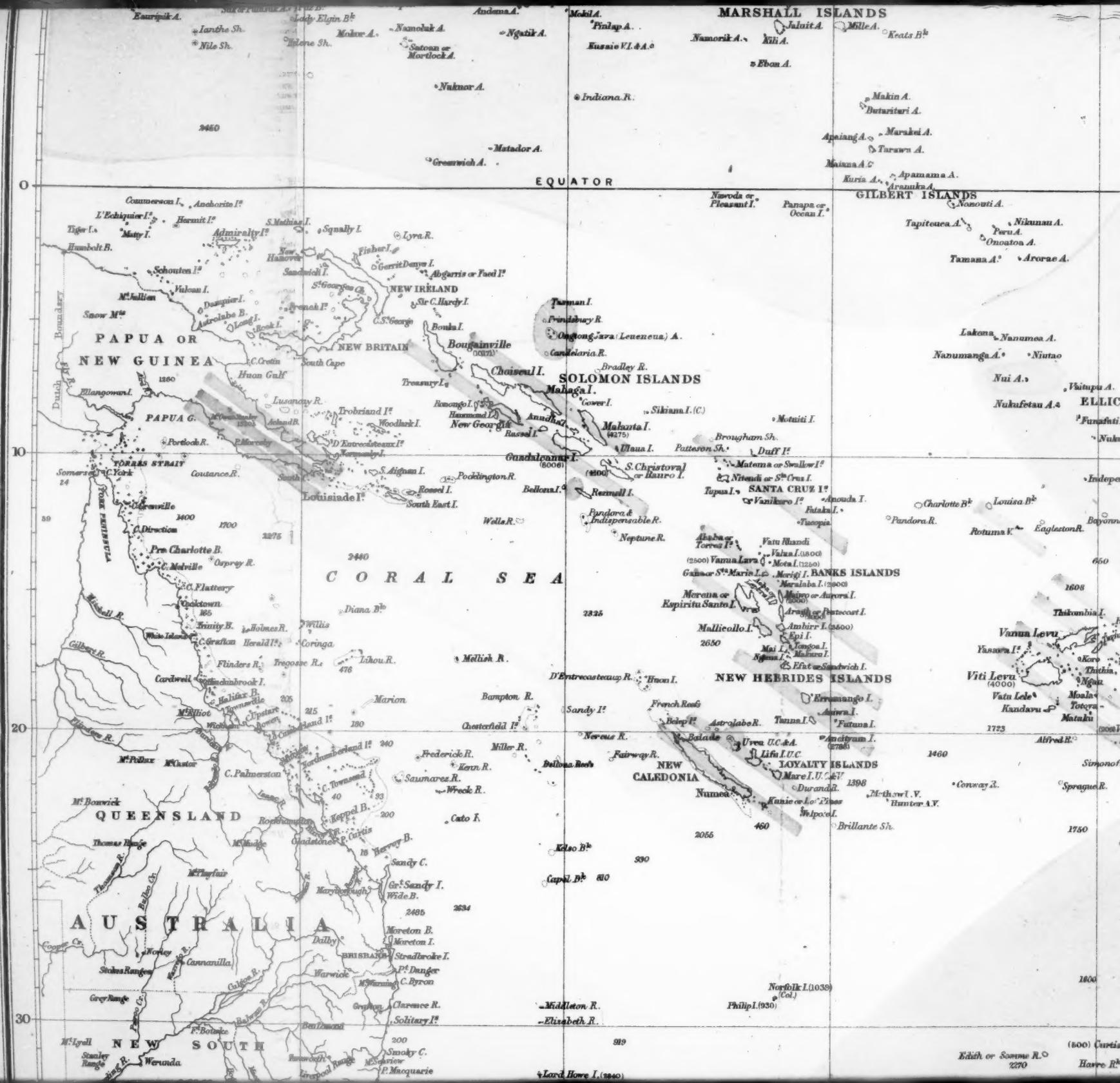


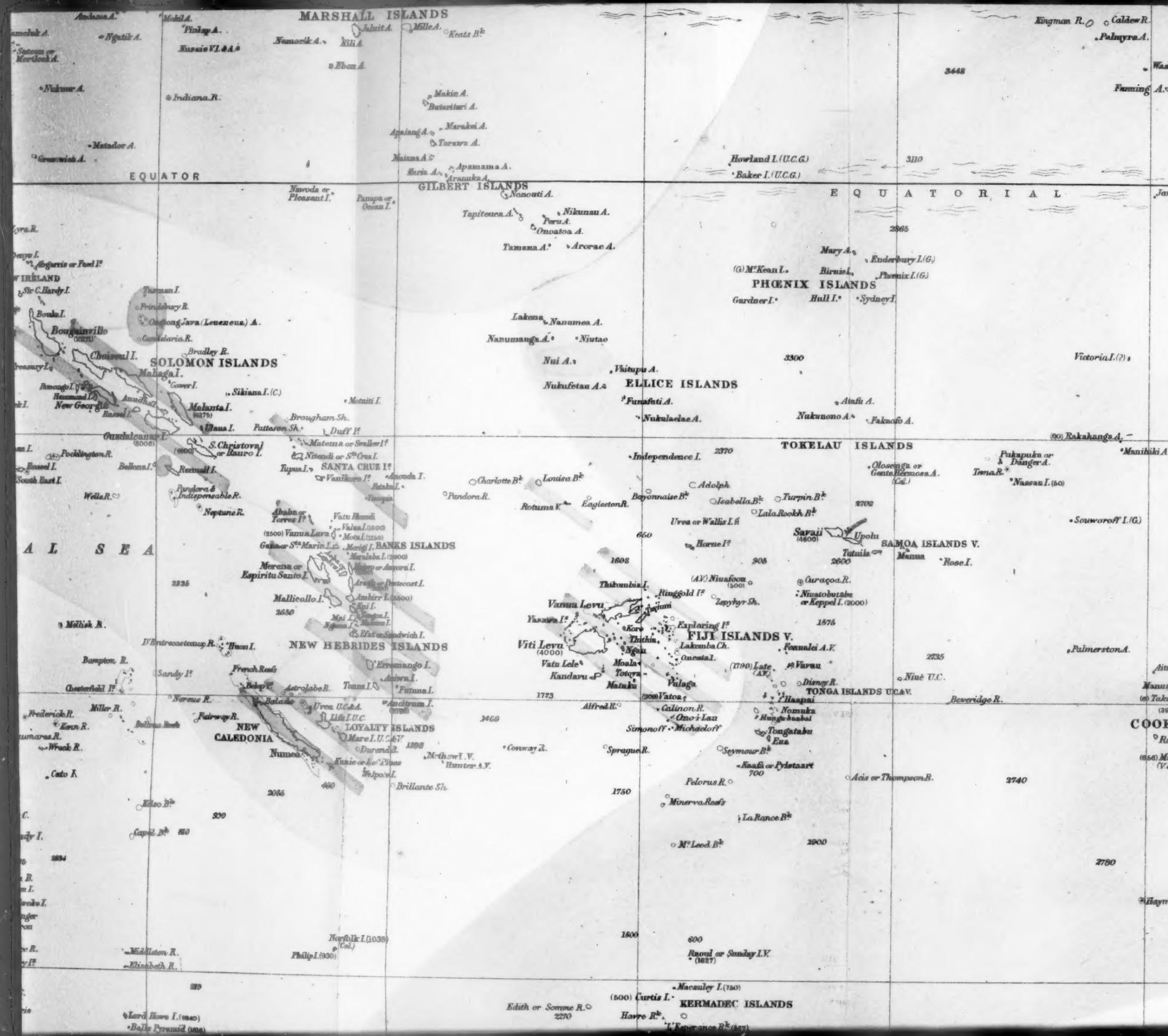












C O U N T E R C U R R E N T

2500

Washington or New York I.

Fanning A.

Christmas A.

Jarvis I. (G.)

C U R R E N T

2425

Malden I. (G.)
(30)

Starbuck I. (G.)
(15)

2750

Tongareva or
Purihyn A.

Caroline A. (G.)

(3260) Tanna V. Motone
(3670) Fatuhira

E Q U A T O R

0

Fatuhira V. Goral I.
(2000) Hau V. Carlo B.
Motuia V.G. Yukahira V. (3640)
(3900) Uapa V. Uauka V. (2430) MARQUESAS ISLANDS V.
(3260) Tanna V. Motone
(3670) Fatuhira

Munihiki A. (80)

Vostok

10

Flint I.

2350

Bellinghausen A.

Tapei (V.I.A.)

Sally A. Mopanu (V.I.A.)

Mopanu (V.I.A.)

SOCIETY ISLANDS Emeo Tepuaimana V.

1940

Herchiercau A.

Avauarurare A.

Tomatangi A.

Tubuai V.

2075

Nelson R.

Rapa or Rapaite V. (272)

Bass I. V. (246)

1985

Ahii A. Mahini A. Tapototo A.
Matahiva A. Rangiroa A. Takaro A. Neputa A.
Tikahau A. Matakai A. Tihit. Polapula A.
Makatea A. Arema A. Matakai A. Tihit.
U.C. Keakura P. Teau J. Tihit.
Nau A. Rarotonga A. Takarua A. Takarua A.
Takarua (Kih.) Takananu A. Rarotonga A. Takarua A.
Mataiva A. Motutunga A. Rarotonga A. Takananu A.
Mitea A. Haraki A. Tane A. Takananu A.
Reitoru A. Hiharo A. Tane A. Takananu A.
Raravera A. Nongonenga A. Takananu A.
Manuhangi A. Paroa A. Nointerakia A. Nature A.
Vaiavaea A. Raro A. Raro A.
Vahinehi A. Vahinehi A.

TUAMOTU

OR

Anuaneruaga A. Nukutupipi A. Vavaunu A. Tureia A. LOW ARCHIPELAGO

Tomatangi A. Mururoa A. Marutea A.

Aboua A. Anauia A.

Morano A. Mangareva A. Minerva A.

S.Juan-Bautista A. Timos A. Portland R.

Oroa A. Orao A.

Elizabeth I. (U.C.)

Disis A. (23)

Papagon I. V. (22)

COOK ISLANDS

Rarotonga V. (4800)

Mangareva (V.I.C.)

(300) Rimatara V.

Hull I. (68)

(238) Rurutu V. (2300)

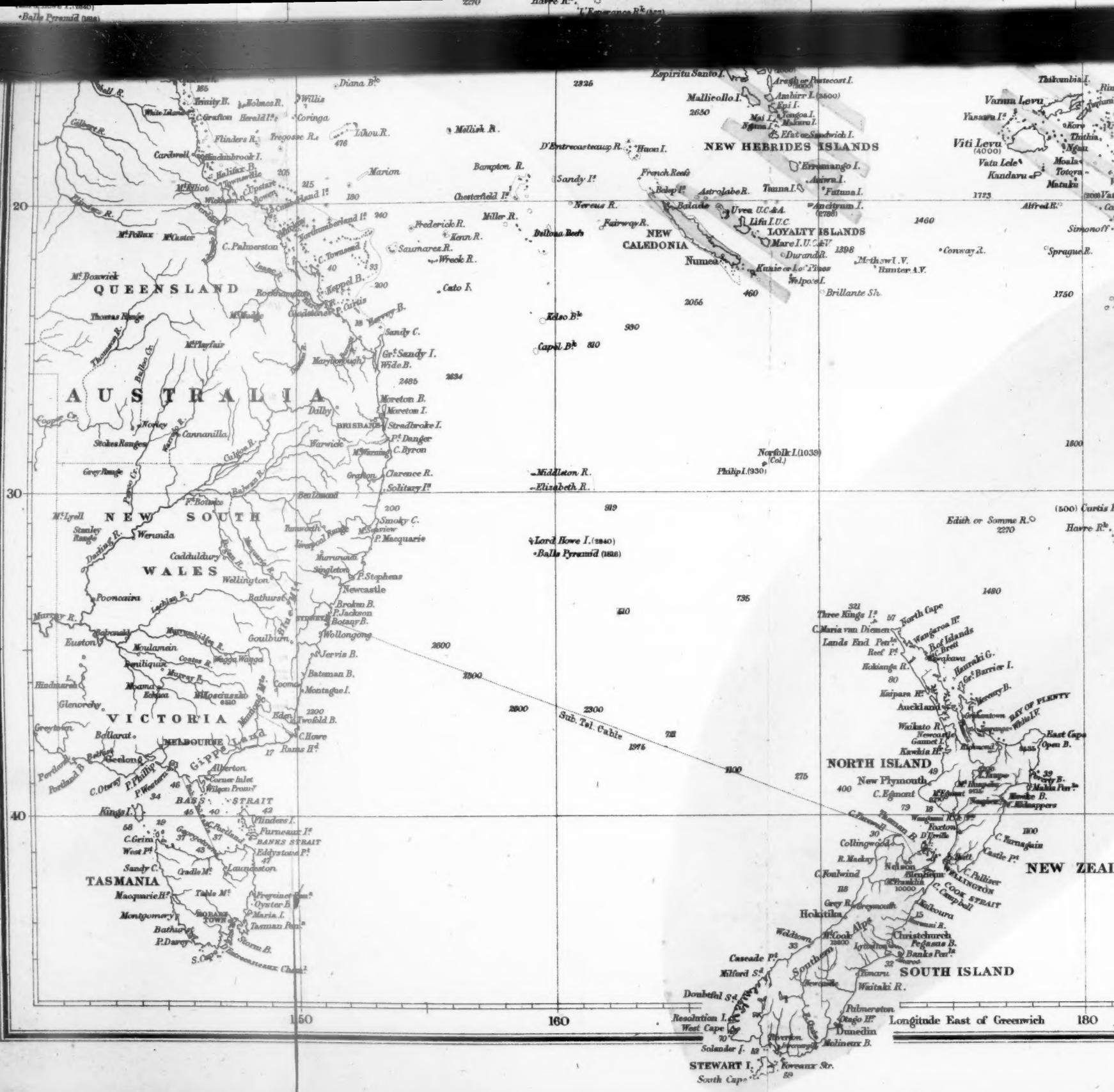
AUSTRAL ISLANDS

(2450) Rapaivai V.

or Varitao

Haymet R.²

Orne B.²



180	Longitude West of Greenwich	170	160	150	140
1575	FIJI ISLANDS V. Tubua, Lakemba Ch. Naua, Onoatai. Totova, Vula, Diving R. (1790) Vatoa.	2235	Palmerston A.	2235	1575
1580	Exploring I. Naua, Lakemba Ch. Naua, Onoatai. Totova, Vula, Diving R. (1790) Vatoa.	2235	2235	2235	1580
1585	Scilly A. Mopelia A. Mataiva A. Mataiva V. Mataiva V. Takutea V. Tepuaianu V.	2235	2235	2235	1585
1590	Curacao R. Ninotobatai or Kepul I. (2000)	2235	2235	2235	1590
1595	Ringgold I. Zephyr Sh.	2235	2235	2235	1595
1600	1600	2235	2235	2235	1600
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2575</td					

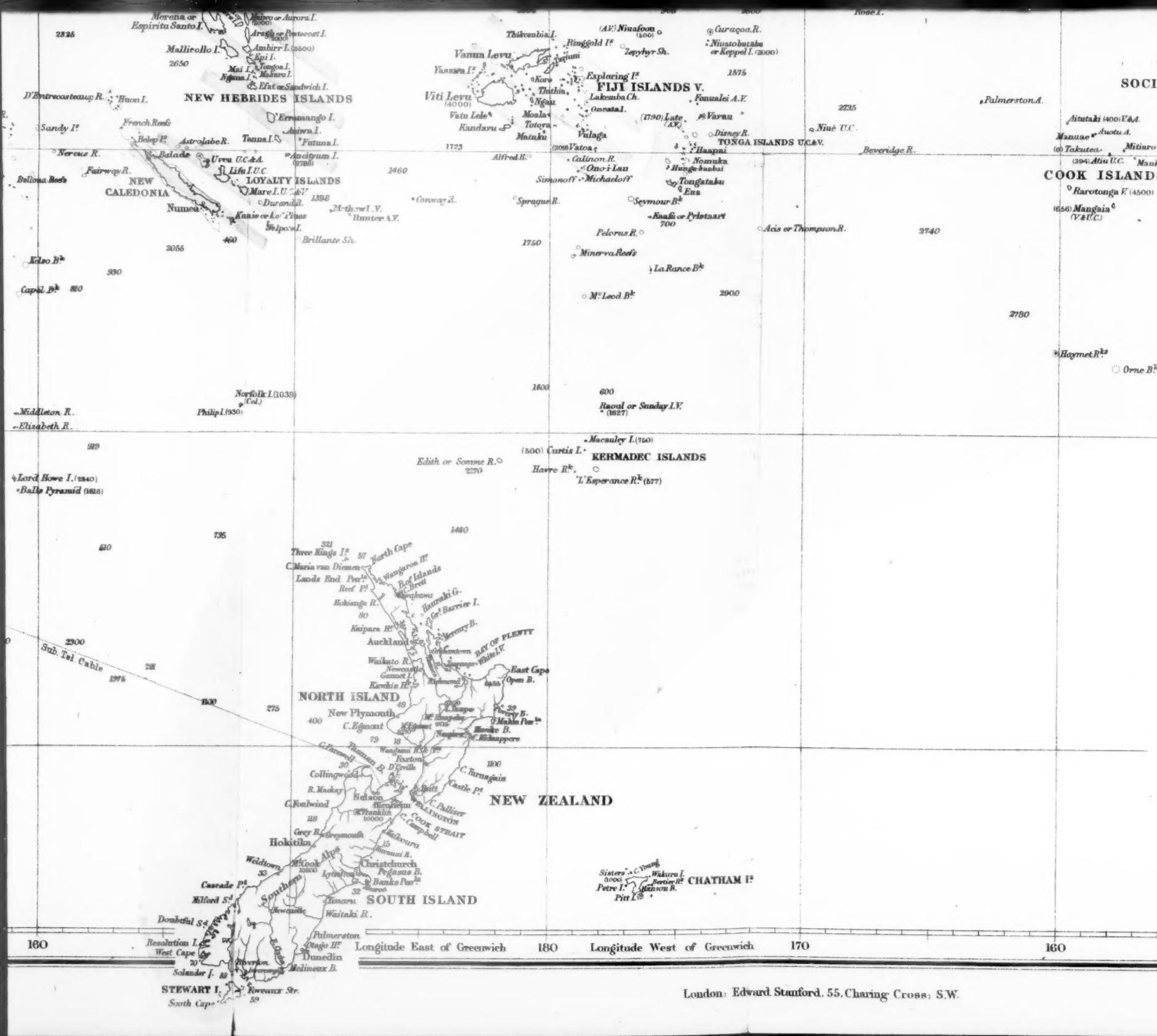
*Pink. Samoans or Brown Polynesians.
Purple. Tarpons or Micronesians.
Blue. Papuans or Melanesians
Pink bands indicate mixture of
Samoans with Papuans.*

Sisters' C. Young
Wakuru I.
0000 Petre I.
Petre I. Mason B.
Pitt I. + CHATHAM I.

ZEALAND

180 Longitude West of Greenwich

London: Edward Stanford, 55, Charing Cross, S.W.



U.C. <i>Mauke</i> (40) U.C. ISLANDS	<i>Aruauararo</i> • <i>Aruauararo A.</i> <i>Nukatipipi A.</i> <i>Varauanua A.</i>	<i>Tureia A.</i> LOW ARCHIPELAGO
ga <i>V</i> (4500) • <i>Hull I.</i> (66)	<i>Tematangi A.</i> • <i>Abunui A.</i>	• <i>Tenarunga A.</i> • <i>Mururoa A.</i> <i>Moritea A.</i>
2388 (300) <i>Rimatara V.</i>	<i>Rurutu V.</i> (1300) • <i>Tubuai V.</i>	<i>Anaaiti A.</i> <i>Mangareva</i> (V.L.A.) • <i>Minerva A.</i>
AUSTRAL ISLANDS	<i>Morane A.</i> • • <i>S.Juan Bautista</i>	• <i>Tinoe A.</i> • <i>Portland R.</i>
(2450) <i>Rapirivai</i> • <i>V.</i> or <i>Vavitao</i>		• <i>Oeno A.</i> • <i>Elizabeth I.</i> (U.C.) • <i>Pitcairn I. V.</i> (U.C.)
		• <i>Ducie A.</i> (U.C.)

2075
Neilson R. 4.
Orne B.
Rapa or Rapaiti V. (2172)
Bass I? V. (346)
1985

2790

285 AN ETHNOLOGICAL
NOTE
THE
PACIFIC ISL

<p><i>Pink. Sawaiori or Brown Polynesians.</i></p> <p><i>Purple. Tarpon or Micronesians.</i></p> <p><i>Blue. Papuans or Melanesians</i></p> <p><i>Pink bands indicate mixture of Sawaiori with Papuans.</i></p>		<p>BY REV. S. J. WHIT</p> <table> <tr> <td>A.</td><td><i>Atoll</i></td><td>P.</td></tr> <tr> <td>av.</td><td><i>Active Volcano</i></td><td>Pt</td></tr> <tr> <td>B.</td><td><i>Bay</i></td><td>R.</td></tr> <tr> <td>Bk.</td><td><i>Bank</i></td><td>Rk</td></tr> <tr> <td>C.</td><td><i>Cape</i></td><td>Sd.</td></tr> <tr> <td>Ch.</td><td><i>Channel</i></td><td>Sh.</td></tr> <tr> <td>Col.</td><td><i>Colonized</i></td><td>U.C.</td></tr> <tr> <td>G.</td><td><i>Guano</i></td><td>V.</td></tr> <tr> <td>Har.</td><td><i>Harbour</i></td><td>V.I&A. V.</td></tr> <tr> <td>I&A.</td><td><i>Island & Atoll</i></td><td>Atoll, wh</td></tr> <tr> <td>Mt.</td><td><i>Mountain</i></td><td>are found</td></tr> </table>	A.	<i>Atoll</i>	P.	av.	<i>Active Volcano</i>	Pt	B.	<i>Bay</i>	R.	Bk.	<i>Bank</i>	Rk	C.	<i>Cape</i>	Sd.	Ch.	<i>Channel</i>	Sh.	Col.	<i>Colonized</i>	U.C.	G.	<i>Guano</i>	V.	Har.	<i>Harbour</i>	V.I&A. V.	I&A.	<i>Island & Atoll</i>	Atoll, wh	Mt.	<i>Mountain</i>	are found
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Mt.	<i>Mountain</i>	are found																																	

2835 AN ETHNOLOGICAL MAP OF
THE
PACIFIC ISLANDS

BY REV. S. J. WHITMEE.

A.	Atoll	P.	Port
a.v.	Active Volcano	P ^t	Point
B.	Bay	R.	Reef
B ^k	Bank	R ^k	Rock
C.	Cape	Sd.	Sound
Ch.	Channel	Sh.	Shoal
Col.	Colonized	U.C.	Upraised Coral
G.	Guano	V.	Volcanic
H ^r .	Harbour	V.I&A.	Volcanic Island and
I&A.	Island & Atoll		Atoll, where the two forms are found as at Ponapi I.
M ^t	Mountain		

Uninhabited Islands are written in Italic Characters thus "Motane"

*Heights are expressed in English Feet.
Soundings in Fathoms.*

150

140

130

130



JUNE 25TH, 1878.

JOHN EVANS, Esq., D.C.L., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

DR. PAUL TOPINARD, Professor à l'Ecole d'Anthropologie de Paris, was announced as an Honorary Member.

The following new Members were also announced—H. W. JACKSON, Esq., M.R.C.S., DR. DUNKLEY, and the REV. H. W. WATKINS.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same:—

FOR THE LIBRARY.

From the ACADEMY.—The Transactions of the Academy of Sciences of St. Louis. Vol. III, No. 4.

From the SOCIETY.—Proceedings of the American Philosophical Society. Vol. XVII, No. 100.

From the ASSOCIATION.—Transactions of the National Association for the Promotion of Social Science, 1876.

From the SOCIETY.—Journal of the Bombay Branch of the Royal Asiatic Society. Vol. XII, No. 35.

From the EDITOR.—*Revue Internationale des Sciences.* Nos. 24 and 25, 1878.

From the EDITOR.—“Nature” (to date).

From the BERLIN ANTHROPOLOGICAL SOCIETY.—*Zeitschrift für Ethnologie.* No. 6, 1877.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXVIII, No. 187.

From the EDITOR.—*Revue Scientifique*, Nos. 50 and 51, 1878.

The following papers were read:—

The ETHNOLOGY of POLYNESIA.

By Rev. S. J. WHITMEE, F.R.G.S., C.M.Z.S.

IN this paper I shall endeavour to show the distribution of races of men in the intertropical islands of the Pacific. The map with which, by the liberality of the Council of the Institute, the paper is illustrated, presents to the eye what is here recorded. In its main features this map agrees with the ethnographic charts of the Pacific already published, but it gives

more details than any preceding map. It has been constructed entirely from my own personal knowledge of the people, or from information obtained from persons who have lived on, or travelled amongst, the islands in various parts of the Pacific. Hence, so far as it is worth anything, it may be regarded as an independent confirmation of the researches upon which previous ethnographic maps of the Pacific have been based.

Possibly some members of this Institute may be doubtful whether I am justified in taking for granted the existence of the different races of men which the map indicates. At least one eminent naturalist—Mr. A. R. Wallace—has within the past few years declared his belief that all the people inhabiting the islands of the Pacific, from the Hawaian Islands in the North to New Zealand in the South, and from the Solomon Islands and the New Hebrides in the West to the most distant Eastern islands, are but varying forms of one great Oceanic race.

As some of you know, I have already controverted this view.* And I have the satisfaction of knowing that several eminent men of science and Ethnologists who have given attention to the subject think Mr. Wallace is wrong. As far as I am aware, however, he has not up to the present time admitted this; but he has not attempted to disprove the argument, or explain the facts which have been adduced in opposition to his view. Last year a friend told me Mr. Wallace had said he had not given any further consideration to the subject since the publication of his "Malay Archipelago." Now that he is engaged in editing the volume on Australasia and Polynesia in Mr. Stanford's "Compendium of Geography and Travel," perhaps we may hope he will be led to reconsider this question, and to give us the benefit of his views after further study.

I shall not at the present time attempt further disproof of Mr. Wallace's theory, or recapitulate the race characteristics of the Polynesians. But in this connection I wish just to mention the lecture on "The Native Races of the Pacific," recently delivered by Professor Flower, F.R.S., at the Royal Institution. I am glad to find that from craniometry Professor Flower arrives at results similar to those which I have reached from a study of the external and mental characteristics, the manners and customs, and the languages of these people. We all know that in such questions the convergence of different lines of research in the same point of agreement, adds immensely to the probability that what they agree on is correct. Professor Flower finds the crania of the black people in the western portion of the Pacific

* "The Contemporary Review," February, 1873.

to differ greatly from those of the brown people occupying the central and eastern islands; in fact, he believes them to be totally distinct. In some places, however, the crania obtained indicate more or less admixture between the races. This is what other lines of research indicate.

There are *three* divisions of the people marked by the three colours in the map. The *blue* colour in the west represents the *black Melanesians*; the *pink* in the eastern portion, including the Hawaiian Islands and New Zealand, represents the *brown Malayo-Polynesians*; the *purple*, chiefly north of the Equator, represents the *Micronesians*, a people differing in several respects from both of the other races. The *pink* bands running through groups in the Melanesian area indicate the admixture of that people with the Malayo-Polynesians, the proportion being roughly shown by the number of bands.

I.—THE MELANESIANS. These people were, without doubt, the earliest of the present occupants of the Pacific Islands. Probably we may regard them as the aboriginal inhabitants. Possibly they were more widely distributed in former times than they now are. I have not lived among these people, but I have visited some of the islands where they live, and have seen natives of Fiji, the Loyalty Islands, New Caledonia, and the New Hebrides, and have given a little attention to some of their languages. Everything I know about them indicates that they are essentially one people, modified in the various islands by the different circumstances which have affected them, and by more or less mixture with the brown people.

I am not prepared to pronounce a very definite opinion as to the affinities of the blacks of Polynesia with other peoples of the world. My studies in this direction have not been such as to warrant such an expression of opinion. But, considering that aboriginal black populations have been found in most of the continents and larger islands of the southern hemisphere, I should naturally expect to find more or less affinity between them all. As far as my reading has gone, it has tended to confirm this view. I certainly believe the blacks of Western Polynesia have close affinities with the Papuans of the Indian Archipelago. Probably they are remotely related to the people of Africa. In taking this view I am following, as you are aware, that of some of the most eminent comparative Ethnologists.

I will not attempt to say how these Melanesians came to occupy the islands in which they are now found. We have evidence as to the way in which the brown race may have spread, but none whatever as to how the earlier black race came to inhabit these remote and isolated positions. The brown

people are all navigators. This is not, however, the case with the blacks. Indeed, I have often thought wherever the blacks are found to be navigators there are indications that they have learnt the art from contact with the brown people. There is every reason to believe that these two races have come into contact with one another at various points in the Melanesian area. In many places there has plainly been a mixture of blood. But even where this is not the case, or where this mixture has taken place to only a slight extent, the habits and customs of each race may have been affected by their contact with one another.

We will now briefly run over the area occupied by this Melanesian race, and I will point out how far I believe the people to be mixed.

New Guinea is properly outside the region which this paper takes up, as I reckon that with the Indian Archipelago. But in passing it may be remarked that in the eastern peninsula of that island there seems to be a considerable admixture of races. The Rev. W. G. Lawes, who lived several years on Niue, or Savage Island, in the Malayo-Polynesian area, and who has recently spent four years in this portion of New Guinea, has there found people resembling very closely the brown Polynesians. Evidence of this has been given in the excellent paper on the "Motu" of Port Moresby, by Dr. W. Y. Turner, which was read before the Institute last February.* And I hope Mr. Lawes, who is now in England, will soon give us further information on this point.

As far as we have information respecting the people of New Ireland, New Britain, and the neighbouring smaller islands, they seem to be pure Papuans or Melanesians. But we know at present very little about them, and further information may show them to be mixed. My experience in studying this subject has been that the more we have learnt about the people in this Melanesian area, the more evident it has become that they have some mixture of brown Polynesian blood. Hence I should speak with the utmost caution, and only provisionally, about purity of blood where our opinion is necessarily based chiefly on negative evidence.

I have no certain information which would indicate that the Solomon Islanders are mixed with the Malayo-Polynesians. But there are a few things which would, to my mind, furnish presumptive evidence that they are.† Some of these people

* See "Journal Anthro. Institute," vol. vii, p. 470.

† Since this paper was read, the Rev. J. Inglis, long resident as a missionary at Aneityum, in the New Hebrides, has informed me that the late Bishop Patteson told him he had no doubt but the Solomon Islanders were largely

are described as being fine large men—much larger than the blacks usually are. I have not visited these islands; but my knowledge of the people on other islands would lead me always to suspect a mixture of blood where the blacks are large in size. These Solomon Islanders are also good navigators, and build excellent large canoes. In this respect they are very different from the pure Melanesians.

Passing through the Santa Cruz and Banks Islands, where the testimony of the late Bishop Patteson is in favour of our regarding the people as mixed Melanesians, we come to the New Hebrides. Some of the inhabitants of this group may probably be regarded as pure and typical Melanesians. But in most of the islands the blacks have a strain of brown blood; and in at least four places pure Malayo-Polynesian colonies are found, *viz.*, at Niuē, Futuna, Mel, and Fil. The two latter are small islands on the coast of Efat. These colonies keep themselves distinct from the blacks. And the difference between the two races is so great that it at once strikes the most casual observers. The names of two of the islands occupied by these colonies—Niuē and Futuna—may indicate the region whence they came; for these are the names of two islands between Fiji and Samoa.

Although these colonists keep themselves distinct from the blacks, it is highly probable that their presence would more or less affect the population around them. Black men generally like lighter-coloured wives. By fair means or foul some of these Melanesian men would probably gain possession of women belonging to the colonies. The blacks are more likely to become mixed in this way than the brown race. I have always found the lighter-coloured people to look down upon the blacks; and, as a rule, the brown men would not take black women for their wives except when they could not obtain any others.

In the Loyalty Islands there is some considerable mixture of the two races. On the island of Uyea there is a brown colony, and there the two people have kept somewhat distinct. They retain two languages, although they are, as would naturally be supposed to be the case on such a small island, a good deal mixed. The name Uvea or Uea seems to indicate the island whence the brown people came. *viz.*, Uvea or Wallis Island, west of Samoa. When missionaries from Samoa first visited the other islands of the Loyalty Group, more than 20 years ago, they found some brown Polynesians living among the people. These had come from Tonga. I saw some of these Tonguese there in 1863, and again in 1870. They had lost their

mixed with the brown Polynesians, and especially in the eastern part of the group. November, 1878.

way at sea, and had been carried by the winds and current to the Loyalty Islands. In this way the population of these islands has doubtless been considerably modified from the pure Melanesian type. This is also the case on the neighbouring large island of New Caledonia.

On Rotuma there is also a mixture of the two races, although the Melanesian largely predominates. In fact it is probable that this island contains a mixture of the three peoples of Polynesia. The Rev. G. Turner, LL.D., mentions some people, probably from the Gilbert Islands, who were cast on that island.*

Coming now to Fiji we find the inhabitants considerably mixed, especially in the eastern portion of the islands. I have never felt inclined to adopt the view usually advocated to account for the mixture of races in this group, viz., that this was the last stage in the journey of the Malayo-Polynesians in their migration, before they broke up and spread over the eastern islands. Those who adopt this view think they made a considerable stay in Fiji, and hence the mixture of the people. Such a theory is extremely improbable, and it is altogether unnecessary in order to account for the present population of these islands.

It is well known that for a long time there has been frequent intercourse between the Tongan Islanders and the Fijians. It is on the eastern side of Fiji, nearest to Tonga, that the people are most mixed. Tongans have settled there, have exercised a great influence over, and have intermarried with the original Melanesian population. The population of some of the eastern islands appears to be nearly as much Tongan as Melanesian. Even many of the Fijians who appear to be pure Melanesians have probably some brown Polynesian blood in their veins. The people generally are much larger than the unmixed blacks are usually found to be. This, at any rate, is the case with the coastal tribes. I am not certain whether the mountain tribes are as large as those on the coast. We have adopted the Tongan form of the name for these islands; the original Viti being changed by them to Fiti, and from that we have Fiji.

We have gone over all the islands where the Melanesian element in the population predominates. Although in some of these there is more or less brown Polynesian blood, the black element very largely exceeds the other; the brown element can be regarded as only infused. There are, however, some islands peopled by the brown race, where there appear to be traces of a Melanesian element in the population. This is the

* See "Nineteen Years in Polynesia," p. 359.

case in New Zealand. I think we have evidence which tends to show that there was an aboriginal black population in those islands previous to the arrival of the Maori. There is probably a little admixture of blood in Samoa, but it is very slight, and may doubtless be accounted for by connection with Fiji. I am strongly inclined to think there is a Melanesian element in the Marquesas Islands. My reasons for thinking so are very slight, and probably will fail to be convincing to others. The Marquesas Islanders are a very savage set of people, they appear to be broken up into hostile tribes, and are cannibals. Their language also differs in different parts of the group. Indeed, there are, if my information be correct, at least two different dialects there.

Now in these respects the Marquesas Islanders differ from most of the pure Malayo-Polynesians. When they were first discovered by Europeans these brown Polynesians were not a very savage people. Early navigators were generally well received by them. And all our subsequent intercourse with them has proved that they are not naturally a race of bloodthirsty savages. The unfortunate massacre of members of La Perouse's expedition in Samoa, and the killing of Captain Cook in Hawai'i do not disprove this. Such deeds were either the result of indiscretion, or something worse, on the part of their white visitors, or of a misunderstanding on the part of the natives. They were not the deeds of bloodthirsty, treacherous savages.

As a rule, these brown Polynesians were not cannibals. I very much doubt whether cannibalism can with any justice be regarded as one of their race characteristics. Where people belonging to the race indulged in this horrid custom, I believe it may be accounted for by exceptional circumstances. These may be (1), contact and admixture with the black race, which is always cannibal wherever it is found in Polynesia; (2), the result of hardship and want during long voyages, when the wretched people have been driven by sheer want to eat their companions, and have afterwards retained the habit thus contracted; or (3), the occasional indulgence of a spirit of revenge manifesting itself in biting or even eating a portion of a slain enemy.

Further, the brown Polynesians were not broken up into hostile tribes, having no intercourse with one another. On some islands they were often engaged in war with one another. But in the intervals between their wars, there was much communication between them. Their wars were between those who were generally friends; and after their differences had been settled by a fight, and by the killing of about an equal number of men on both sides, they would settle down again, and

amicably carry on their intercourse with one another until another cause of dispute arose. Owing in great part to this frequent intercourse between the people, we always have found one language to prevail in a whole group of islands.

The Marquesas is the only group peopled by the brown race in Polynesia where two very distinct dialects are found.

All of these characteristics which have been mentioned as not being usually found in the Malayo-Polynesian race are invariably found in the Melanesians:—viz., a savage, blood-thirsty disposition, the practice of cannibalism, the existence of hostile tribes in the same islands who have little or no intercourse with one another, and, as a consequence of this, the existence of different languages in one group of islands, or even on the same island. As these characteristics are found in the Marquesas Islanders, I am inclined to suspect a mixture of Melanesian blood in those people.

II.—THE MALAYO-POLYNESIANS. From what has already been said respecting the brown Polynesians, you will gather that I believe the ancestors of this race entered Polynesia subsequent to the occupation of many of the islands by the black race. It appears to me that there can be little doubt in the minds of those who have given attention to the subject as to the direction of their migration. They evidently went from the Indian Archipelago to the islands they now occupy. I believe we can, with at least great probability, trace them thus far, and show their relationship to the Malays still in that Archipelago, and also to the Malagasy of Madagascar. Whether they can be traced further I am not prepared to say. You are aware that, in a recently published book, a gentleman resident in the Hawaiian Islands—Mr. Fornander—has tried to show that these people have sprung from a pre-Malay race which once dwelt in the Indian Archipelago; and from thence he thinks he can trace them to Western Asia. This gentleman has also ventured to give the probable date of their migration across the Pacific.

I do not intend to examine here those views. Some of them appear to me to be very wild. I will merely say that, as far as my reading on the subject has gone, I have failed to meet with any evidence that the ancestors of the brown Polynesians were a people who occupied the Indian Archipelago before the ancestors of the present Malays arrived there. My own opinion is that the brown Polynesians and the Malays, and also the Malagasy, all sprung from the same stock, but I do not regard the Malays as representing that stock. Probably the Polynesians represent it more nearly than the Malays, for the latter have been more changed than the Polynesians. As

to the date of their separation I can say nothing, except that it doubtless was before the Malay or Javanese languages were affected by the Sanskrit. My faith in pre-historic chronology of every kind is very weak indeed; and I certainly cannot put much confidence in Polynesian chronology derived from legends and genealogies. Still, if we allow margin enough, we may, by a comparison of genealogies, arrive at what we may regard as approximate dates. Mr. Fornander thinks the great migration across the Pacific was made towards the close of the first, or early in the second century. I would like a little more evidence before adopting that date.

A difficulty is felt by many as to the possibility of such an eastward movement, directly against the prevailing trade winds and the usual currents. But it is well known to voyagers in the tropical regions of the Pacific that sometimes there are strong westerly winds blowing there; and also that occasionally there are strong currents setting from the west to the east. These are exceptional. But the probability is that, if the voyage were involuntary, the people would be more likely to be taken off their guard by exceptional winds and currents than by those which usually prevail. If, on the other hand, the people went of their own will—a vanquished tribe determining to seek a new home in the east—I imagine their canoes would lie close enough to the north-east trade wind to fetch the Samoan or Tongan Islands.

Probably they came down by the Solomon and New Hebrides Islands, but finding these occupied by the blacks, they were unable to effect a permanent settlement there. Then they went on until they found unoccupied islands, or some with a population so small that they were able to conquer them, and either occupy the islands conjointly with them, or entirely to destroy them.

We know these brown Polynesians were adventurous voyagers long before their islands were known to Europeans. It is certain that there was frequent intercourse between Tonga and Fiji, between Tonga and Samoa, and also between the Society Islands and Hawai'i. We have several recent well-authenticated instances of people being blown away and passing from the east towards the west. I knew a man who was drifted 1,200 miles in 1862, and who spent eight weeks on his journey. During my residence in Samoa, a boat with some labourers who had escaped from Tahiti, reached those islands. I have already mentioned some Tongans who were drifted to the Loyalty Islands, and whom I saw there in 1863 and 1870. In 1861, some natives of the Tokelau Islands were driven by adverse winds to Samoa, nearly due south. We have not, however,

such well-authenticated examples of people going from the west to the east, except in the North Pacific.

I have by me several accounts of Japanese junks having been driven across the North Pacific, some of which I shall particularly mention by-and-by in connection with the peopling of Micronesia. The best account of a boat from the west reaching Central Polynesia which I know is one obtained from Fotuna or Horne Island (lat. $14^{\circ} 48' S.$, and long. $178^{\circ} 18' W.$). The people now living on that island say, many years ago a large boat with about 40 people in it reached their shores. The natives attacked the crew, and in the fight many of them were killed. Others, however, were spared and allowed to land on the island, and form connections with the natives. The French Roman Catholic priest on the island, who is familiar with the story, says the party consisted of both men and women. These people taught the natives of the island to mark their bark cloth with peculiar patterns, which are at the present time found only in Fotuna and the neighbouring Uvea, or Wallis Island. I have been credibly informed by a gentleman who visited Fotuna and made inquiries on the subject, that drawings of the vessel in which these people arrived, and of various strange utensils and implements which they had with them, are still preserved on the island. It is said that the progeny of the strange people after a time becoming numerous, the pure natives feared they would outnumber them and acquire supremacy over the island, and that in consequence of this fear they killed them nearly all off.

The French priest and the gentleman who gave the information to me, believe these people were either Japanese or Chinese. I never visited Fotuna myself, and therefore can only give the story as I have received it. But it is probably not too late yet to obtain more certain knowledge on the subject from the island; and perhaps the original drawings said to exist (or at least copies of them), might be obtained. I commend the matter to the attention of some gentleman who may be intending to take a yachting cruise through the Pacific.

I think there is every reason to believe that story is, in the main, trustworthy. The killing off of most of the people, and so diluting the foreign blood mixed with the natives could be paralleled by at least one other case which I know of; and it would be a very likely thing for the pure natives to do under the circumstances. It appears to me highly probable that this vessel may have gone from the neighbourhood of the Philippine Islands. And in Fotuna it reached the neighbourhood of Samoa and Tonga, whence it is most likely the Malayo-Polynesians spread abroad to the various groups they now occupy. It

appears to me that a good deal may be said in favour of Samoa having been one of the earliest, if not the first, permanent settlement of these people in Central or Eastern Polynesia. The traditions of many islands point to Samoa as the place to which the inhabitants directly trace their origin.

In his "Myths and Songs from the South Pacific," Mr. Gill tells us (p. 25) the Karika family of Rarotonga expressly state that their ancestors came from Manu'a—the most easterly cluster of islands in Samoa. This, you will see, makes them to have gone in a south-easterly direction.

You are aware that the traditions of nearly all the brown Polynesians and of the Maories, speak of Avai'i, Hawai'i, or Hawaiki, as the original home of their ancestors. These names are found as the names of the largest island of Samoa, and of the Sandwich Islands—under the forms of Savai'i, and Hawai'i. Still it appears to me doubtful whether the Samoan Savai'i is the Hawaiki and Avai'i of tradition. And it is not upon this name that I rest for evidence that Samoa is probably the centre whence most of the other islanders have reached their present places of abode. The traditions of many mention Samoa (generally as Hamoa or Amoa, they being unable to pronounce the S), or some of the islands of the group by name as the place whence their fathers migrated.

Some of the migrations from Samoa are comparatively recent: for example, that of the Ellice Islanders. These people evidently went thence only a few generations ago. The island from which they went may with great probability be determined by the family names borne by some of them. The staff of the chief of the migrating party is still in existence. This staff was given to my brother-in-law, the Rev. G. A. Turner, M.D., of the Samoan Mission, four or five years ago. It is a long staff such as is always used in Samoa by orators when they stand in the *malae*, or place of public assembly, to make a speech. These staves are handed down from generation to generation as a valuable heirloom. They frequently bear the names of great orators who belonged to the respective families. The wood of which this Ellice Island staff was made does not grow in those islands, but is a Samoan wood. As the original wood decayed, it has been patched with other wood indigenous to the Ellice Islands. The traditions of these people record the arrival of two distinct parties from Samoa, one a considerable time after the other.

All the brown Polynesians occupying the islands coloured pink in the map, resemble one another to a remarkable degree, considering the wide area over which they are found, and their consequent isolation from one another. The differences in their

languages are also much fewer than we should naturally have expected them to be, when we consider the long time which must have passed since the people were separated. Still, these differences are greater than they are popularly supposed to be. I have recently prepared a brief sketch of the principal characteristics of these languages for the Philological Society, which has been printed in that Society's Journal. It will not therefore be necessary to say anything here on that subject. Those interested in it can see the paper mentioned.*

III.—THE MICRONESIANS. These people occupy the Caroline, Marshall, and Gilbert Archipelagoes. They differ considerably from both of the other races of Polynesians, and they differ somewhat among one another. I have seen natives from all three of the above-named archipelagoes, although I have visited only the Gilbert group. Some Caroline Islanders who were taken to Samoa to labour on a plantation there, differed in several respects from the Marshall and Gilbert Islanders. They had less stamina in their constitutions than the others. The Caroline Islanders died off very rapidly, while the others stood the work and change of food very well. All of these people are of a light colour; but the Caroline Islanders I saw were more yellow in complexion, while the Gilbert and Marshall Islanders are darker than most of the brown Polynesians. The hair of all is straight and black, and they have little or no beard. In size they are smaller than the brown Polynesians. Some of the Caroline Islanders, however, were of a good size—rather tall and moderately stout; but the people of the other two groups are decidedly small, and of a very spare habit of body.

When I commenced collecting material for a comparative Grammar and Dictionary of the Polynesian languages, I thought those of these people were near enough to those of the brown Polynesians to be grouped together with them. But I soon found them to be very different, and that they form a different family of the Polynesian tongues.

Our information is not sufficiently full to warrant us in speaking positively as to the affinities of these Micronesians with other peoples. The traditions of the Gilbert Islanders indicate that those islands were peopled both from the west and the east. Those who arrived from the east are said to have been from Samoa; those from the west were probably from the Caroline Islands. These greatly predominated over those from the east, and it is probable from the traditions that most of those from Samoa were destroyed. There are traditions of the arrival of other strangers at some of these islands; and it is possible

* *Transactions, &c., 1877-9.*

—perhaps probable—that Chinese and Japanese junks have been cast upon the islands, and that in this way the original population may have been mixed.

My own opinion respecting these people generally is that the bulk of their ancestors came from the Philippine Islands or some other portion of the Indian Archipelago at a period much later than that at which the migration of the brown Polynesians across the South Pacific took place. But they have become mixed with people who have reached those islands from other localities, viz.: from China and Japan, from the brown Polynesian area, and possibly also from the Melanesian region. I have formed this opinion not only from the traditions of the people, and from their physical characteristics, but also from a few things in their languages. We need, however, much more information respecting these Micronesians before we can speak with confidence respecting their exact relations to these other races.

I have mentioned China and Japan among the probable sources whence people have reached Micronesia. It would not be a very remarkable thing if Chinese junks were blown out of their course and taken across to these islands. Indeed, it would be one of the most natural things to expect. But it may be thought extremely unlikely that any Japanese vessels should be taken there. There are, however, several well-authenticated instances of Japanese junks, with living people in them, having been found in various parts of the North Pacific, and to me there appears to be no reason why some may not have reached Micronesia.

In 1814 the British brig "Forester" was cruising off Santa Barbara in California (about lat. 30 N.) when a Japanese junk was met with. It contained three living men, and there were fourteen dead bodies on board. The three who were rescued recovered from their weakness. In December, 1832, a Japanese junk arrived at the Hawaiian Islands. The crew had originally consisted of nine persons. Of these four were living. They declared they had been 10 or 11 months at sea. Their junk was bound from one of the southern islands of Japan to Yeddo, laden with fish, when they encountered a typhoon which drove them out of their course. Their water-vessels contained a supply for only three weeks. When that was exhausted they had only the water they could catch when it rained to supply their wants.

These junks crossed the Pacific much farther north than the Micronesian Islands. But if it be possible for them to cross there, it is also possible for them to go farther south; and vessels running south-east would be very likely to reach one or

other of these islands, which stretch a great distance across the Pacific.

The only island outside the Micronesian area occupied by this people is Nui, in the Ellice group. The people living there say they came from the Gilbert Islands because they were wearied with the wars constantly raging there: that doubtless means that they were defeated and escaped from their conquerors. Going south, they reached Nui and settled there. Their language is the same as that spoken in the Gilbert Islands, with a few verbal differences. At the present time these people form a very flourishing community, much in advance of any of the Gilbert Islanders. I visited their island some years ago and was greatly pleased with what I saw there. All the people are nominal Christians and are advancing in civilisation. Statistics taken during twelve years show the population to be increasing. Under the instruction of their Christian teacher, who is a native of Samoa, they are being very rapidly elevated in every respect.

I intended to discuss the probable future of the Polynesian people. But having already made this paper longer than I at first thought would be needful, I must reserve my remarks on this subject for another occasion. Suffice it to say that I have great hope of the continuance of many of these people; and I believe I could show that, under the influence of a Christian civilisation, they may be raised to occupy a respectable and useful position among the peoples of the world.

DISCUSSION.

Professor FLOWER pointed out how completely Mr. Whitmee's observations on the two principal races of the islands of the Pacific and their distribution accorded with those of Captain Cook, who exactly a hundred years ago first systematically investigated their ethnology. In the words of Forster, who accompanied Cook as naturalist, on his second voyage, "We observed two great varieties of people in the South Seas—the one more fair, well-limbed, athletic, of fine size, of a kind, benevolent temper; the other, blacker, the hair just beginning to become woolly and crisp, the body more slender and low, and their temper, if possible, more brisk, but somewhat mistrustful. The first race inhabits Otaheite and the Society Isles, the Marquesas, the Friendly Isles, Easter Isle, and New Zealand; whilst the second peoples New Caledonia, Tanna, and the New Hebrides, especially Mallicollo."

Anatomical observations upon crania, though still insufficient from want of material, perfectly corroborate this view. Skulls of the two races when pure present the greatest possible contrast; the first or true Polynesians are brachycephalic, straight-faced, narrow-

nosed, and with round orbits; those of the second race (Melanesians) are dolichocephalic, prognathous, broad-nosed, and with low orbits. Undoubtedly there is a great mixture of the two races in many of the islands—a mixture which is taking place at a constantly accelerating speed. All information as to their exact limits where pure, and to the proportions in which they are blended in other regions, is of great value, and no time should be lost in collecting it. Professor Flower inquired how far Mr. Whitmee's observations confirmed the views of Hale and Quatrefages on the migrations of the Polynesians?

On PALÆOLITHIC IMPLEMENTS from the VALLEY of the LEA.
By WORTHINGTON G. SMITH, F.L.S., &c.

THE first discovered implement of Palæolithic age belonging to the gravels of north-east London was found by Mr. G. H. Gaviller in gravel dug on Hackney Downs in 1866. It is an ovate implement about four inches long. Later on, in 1868, Mr. Norman Evans picked up a knife-like or scraper-like instrument, nearly five inches long, in a gravel pit near Highbury New Park; both these objects are described and illustrated by Mr. Evans in his book on the "Ancient Stone Implements of Great Britain," pp. 523, 525. Still later a rude pointed implement was found in Dunlace Road, Lower Clapton, and presented to the Geological Museum in Jermyn Street by Mr. Anscombe.

The Highbury and Lower Clapton positions are two miles apart from west to east, and the Hackney Downs position is exactly intermediate. I am not aware of the finding of any other implements than the three just mentioned in north-east London, till my discoveries made during the present year. My work has been principally confined to Shacklewell (half a mile north-west of Hackney Downs) and Upper and Lower Clapton; both the latter positions being in close proximity with the River Lea. Bones and tusks of large size have at different times been dug up in various neighbouring localities, once near De Beauvoir Square, a mile south of Hackney Downs.

I will take the Shacklewell position first, where the surface is 85 feet above the sea level, the pits being near the north-east corner of West Hackney Church, and less than 300 yards west of the Old Hackney Brook, which is now obliterated. The gravels of this place have been completely described by Messrs. Prestwich and Evans, so that I need only say in reference to them that the gravel and sand vary greatly in thickness and disposition

in different positions, so that a section seen in one pit seldom accords with a section seen in another, even though the two pits may be closely neighbouring ones. Freshwater shells as *Unio*, *Corbicula* and *Hydrobia* are generally abundant (though sometimes quite absent) in the Shacklewell sand, and though these shells are very thin and fragile they are commonly found unbroken. Bones of mammalia also occur chiefly in the lower sands or resting upon the London clay. On my first visit to the spot one of the labourers (observing me to be looking over the sand and gravel) asked me if I was looking for bones, as he had recently found some large bones at the bottom of a pit (at that time the pit was filled in and built over);—these bones the man offered to give me, and he went to the place in the field where he had recently placed them, but on reaching the spot the bones were not there. Close by, the contents of numerous dust-bins had been discharged as foundations for new villas, and a large number of vagrants were searching amongst the rubbish for bones and pieces of iron and wood, so that the relics of the extinct animals were no doubt gathered up and sold for "old bones." The labourers said they would soon be down to the London clay again, in a large and deep pit which I then saw open. After a fortnight I went again to the place, and the men had gone, the pit had been dug out to its lowest depth, filled up with the usual decaying refuse, and upon the exact spot previously occupied by the pit there were four new villas built up to the ground floor.

I found several flint flakes of Palæolithic age *in situ* in these pits, and in a heap of gravel just excavated from a pit close to the rear of the chapel (near Shacklewell Church) I found a massive and rudely chipped butt-end of a pointed implement five inches long, four inches broad, and two and a quarter inches thick—weight, $1\frac{1}{4}$ lbs. Previous to my visit the gravel from these pits had been spread over various roads in the district, and these roads produced three implements, weighing 1 lb. $3\frac{1}{2}$ oz. good characteristic flakes, weight of one $12\frac{1}{2}$ oz., cores, and fragments of worked flint.

The position at Upper Clapton, where I have found a considerable number of flakes, and one well-made pointed implement, is 350 yards east of Abney Park Cemetery, and 150 yards north of the position once occupied by the Hackney Brook. Here there is a coating of river gravel on the surface from a few inches to about three feet in thickness; sometimes the gravel is capped with a layer of brick-earth, varying in thickness from a few inches to two feet. In other places the London clay comes to the surface. The ground falls more than 50 feet in 600 in the direction of the river Lea, the western point of the position

being 107 feet above high-water mark, whilst the eastern point is only 49. Building operations are going briskly on here, and the builders utilise what little gravel there is to the utmost advantage, so that the excavation for this material is in many places less than a foot in depth. In gravel just removed from one of these shallow places on the south side of Cazenove Road, I picked up a good and perfect pointed implement and several characteristic flakes. The gravel distributed over the roads in the same district furnished several good flakes, many spalls, and a few large cores.

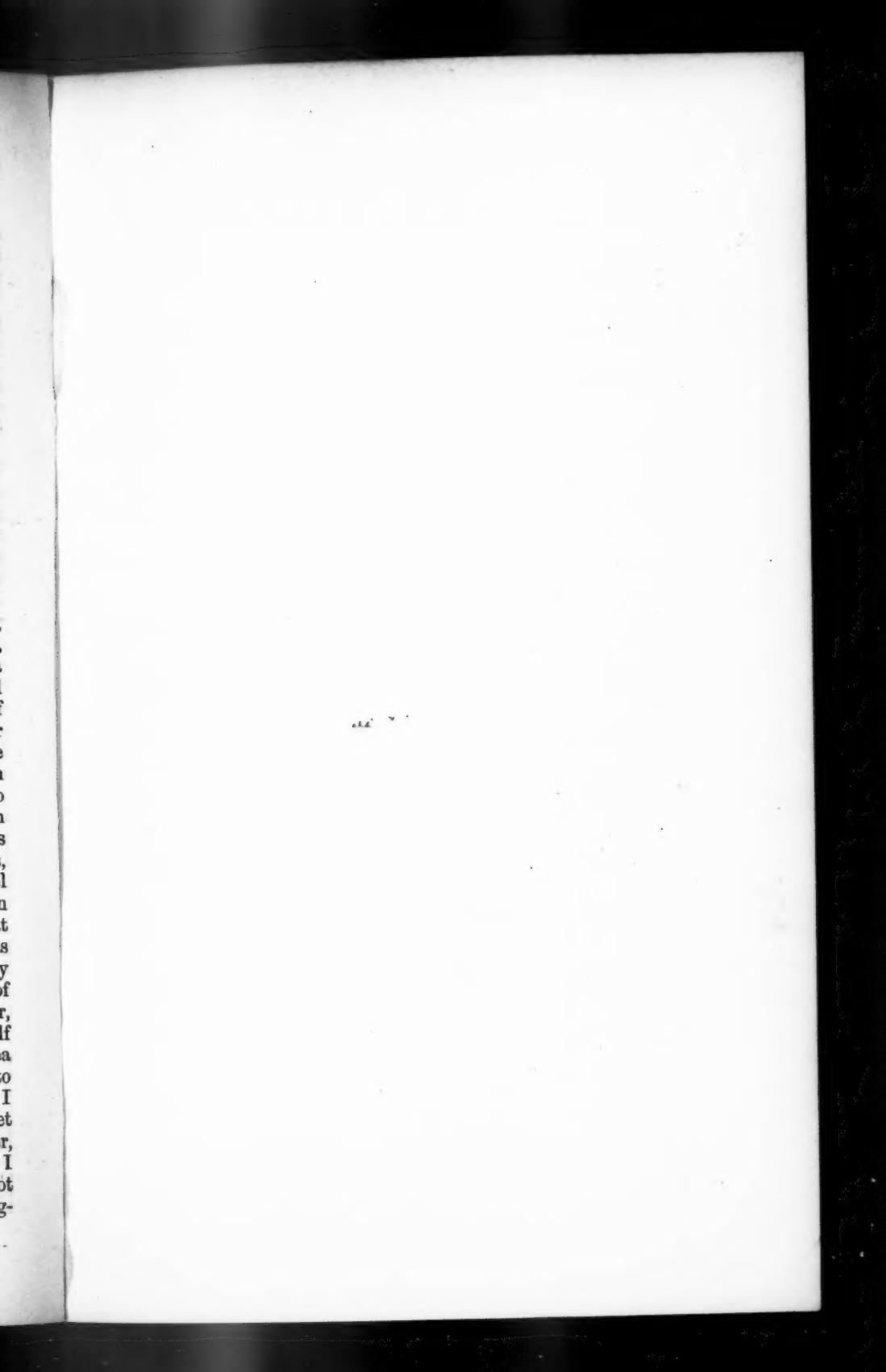
The position at Lower Clapton is one mile east from Hackney Downs, and the level is the same with Shacklewell and Hackney. Several pits have been dug for gravel in this place, but the two larger ones only remain open. They are east of, and close to, the building recently erected by the School Board, and they are half-a-mile south of a sudden bend in the Lea, and three-quarters of a mile north of the bed of the now obliterated Hackney Brook. The gravel here is very similar in general *facies* with the Shacklewell gravel, but I have never seen shells in the Lower Clapton sand. This latter position has produced more implements, flakes, and cores than Upper Clapton or Shacklewell, and I am disposed to think that most of the worked flints come from a thin deep-red seam of gravel, which is commonly about 10 feet beneath the surface; at any rate I have found implements and flakes *in situ* in this stratum in all the localities.*

At Craven Park, one and three-quarter miles north of Hackney Downs, at Tottenham Cross, two miles north of the same place, at Lower Edmonton, three and a-half miles further north, I have found several flakes and spalls in the newly excavated gravels, but no implements. Going still further north, and close to Waltham Station, half-a-mile west of the Lea, and 11½ miles from London, gravel has recently been dug from two pits and distributed over some new roads in the neighbourhood. In this material I have found several flakes, spalls, and cores. At Flamstead End, north of Cheshunt, one mile west of the Lea, and 13½ miles from London, there is a very large

* During the year 1878 I have found in the pits and roads about Lower Clapton ten perfect pointed implements, three broken ones of the pointed type, a large knife-like, well-worked flake weighing 11 oz., and at least 100 flakes large and small, and more or less worked. The largest and most massive instrument from Lower Clapton weighs 2 lbs. 3½ oz., the lightest, made from a piece of tabular flint and worked on both sides, weighs less than 4 oz. Two flakes are remarkable; one, beautifully worked, 2½ inches long and 1½ inches broad, weighs only ½ths of an ounce, whilst the second, which is 4 inches long, 2½ broad and with a large cone of percussion on the plain side, weighs only 3½ oz.: this beautiful example is worked to an implement-like form and is so thin that when held up to a strong light it is transparent throughout.

gravel-pit now open, just behind the "White Horse" Inn. The gravel here appears to be identical with that of Shacklewell, and it abounds with fragments of worked flint. One of the excavated heaps yielded a very large flake with a good cone of percussion. A prolonged and careful search over the entire exposed surface of the gravel as seen in section, produced several worked fragments and a good and carefully-worked flake which had dropped to the base of the section. I was moreover fortunate enough to see two large and well-worked flakes *in situ*. They were resting under five feet of gravel, and were firmly embedded in a position where there was no sand. I detected their presence by seeing the projecting worked edges; the two flakes were close together. From Cheshunt I went to Hoddesdon, 17 miles from London, and a mile west of the Lea, where there are two pits, and from Hoddesdon to Amwell, 19 miles from London, and half-a-mile west of the Lea, where there is a very large pit; the result was not good, as I only met with one flake and a few spalls and fragments at the latter place.

Whilst returning home on May 31st, through Finsbury Park, I observed a load of gravel being shot into the Queen's Road, and on looking over the heap I picked up the butt-end of a pointed implement. A few days previous to this I had picked up a well-made pointed implement a little to the north-east of the Queen's Road locality. On making inquiries of the carter as to where the gravel came from, he said from Hertford, by the Great Northern Railway. On the 4th June, I picked up an excellently-worked flake near the Seven Sisters Station, close to Tottenham on the Great Eastern Railway, and further search was rewarded by another broken implement, several other flakes—one worked to an implement-like form—and a few spalls, cores, &c. On inquiry of the builder's foreman as to where the gravel came from, he said it was brought from Hertford in barges down the Lea. I now inquired of the station-master on the Great Northern Railway at Hertford as to where the gravel was brought from which was despatched to London, and he kindly gave me references to three large pits: two close to and north of the Lea and Hertford, and on either side of the Beane River, and another at Bengeo, between Hertford and Ware, and half a mile north of a bend in the Lea. At the wharfs on the Lea in London I got similar information, and secured a reference to another large pit a mile north-west of Ware and the Lea. I visited all these gravels which are about 130 and 140 feet above the sea level, and reputed to be of middle-glacial character, the lower gravels principally south of the Lea being fluviaatile. I also visited a few smaller pits in the neighbourhood, but I got very little in the way of worked flints from any of them; frag-



CEPHALIC INDEX.

The skull is classed as:

DOLIOCEPHALIC if below 75 in 100

MESOCEPHALIC, from 75 to 80 "

BRACHYCEPHALIC, if above 80 "

GNATHIC INDEX

ORTHOGNATHOUS, if under 92 in 100

MESOGNATHOUS, from 92 to 102 "

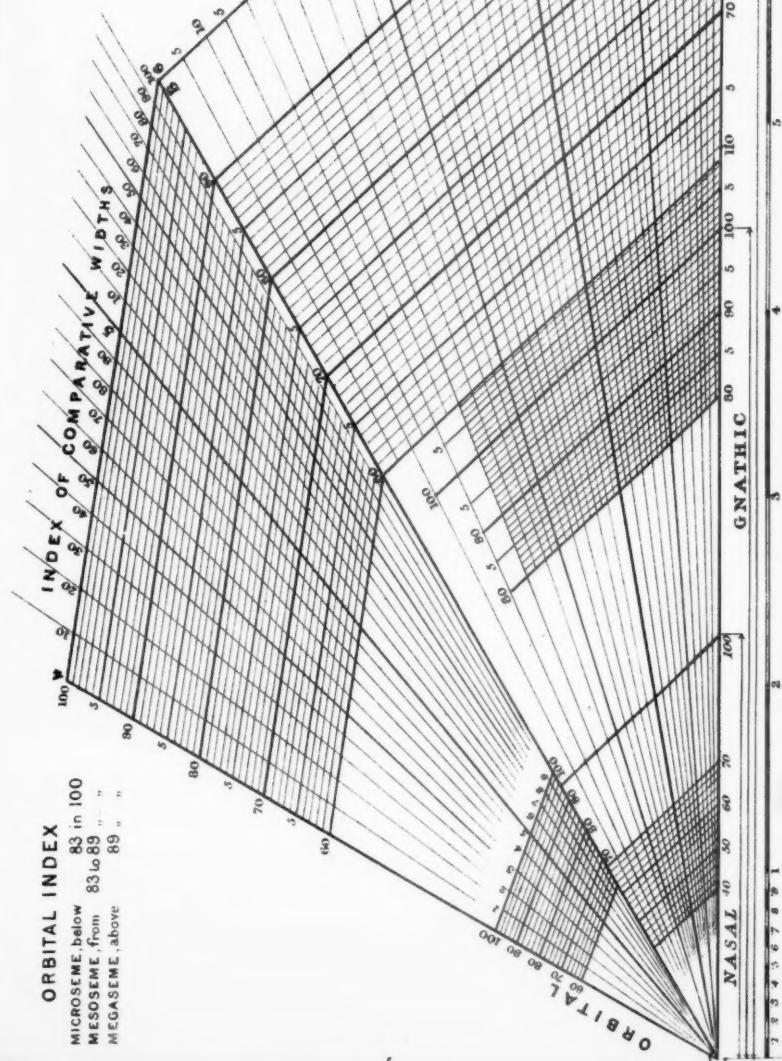
PROGNATHOUS, if over 102 "

NASAL INDEX

LEPTORHINE, when index 48 to 100

MESORHINE, from 48 to 52 "

PLATYRHINE, if over 52 "



SCALE TO FIND CRANIAL INDICES.

Geo M. Atkinson, Inv't. of Det., 1878.

inches
millimeters

ments undoubtedly worked by hand, I certainly found, and I was also able to confirm the correctness of the information I had received as to the identity of the gravels with the implement-bearing material brought to London and widely distributed over the roads near Finsbury Park; I have therefore found implements and flakes in the Lea Valley from London to Hertford. Further north, at Bishops Stortford and Pesterford Bridge in the Valley of the Stort, which river joins the Lea at Hertford, Mr. Evans has recorded ("Ancient Stone Implements of Great Britain," p. 530) the finding of two implements by Mr. W. H. Penning; this discovery, linked to mine, carries an implement-bearing valley from London to more than 34 miles north. But in a pit, however large it may be, a great surface of gravel is seldom exhibited, a single newly-gravelled road well washed by rain is better than the best pit. I have lately examined at least 20 newly-gravelled roads, walking down each road in different directions from 5 to 10 or 20 times. In comparison with the tens of thousands of unworked flints, the worked ones are uncommonly rare, and as a rule I have found only one satisfactorily worked flint in a four or five hours' walk over the gravels, so that the mere examination of half-a-dozen implement-bearing pits without a very satisfactory result, is only what must be reasonably looked for.

In conclusion, I think it would be well for Archæologists to notice, collect, and arrange with great care the *rougher and ruder* paleolithic instruments, for possibly it is from these ruder objects (often made by a few well-directed blows) that we shall eventually learn something satisfactory of the ways of the men who made and used the instruments. It is only reasonable to suppose that ornate and elaborate implements were less often made than rough and unfinished ones; the first would require a man of culture and skill, with time upon his hands, the second could be made in a moment or two by the merest savage. Any rough work would speedily damage and destroy some of the beautiful and highly wrought implements; it therefore seems more probable that a greater variety will eventually be found in the rougher implements which were speedily made for instant daily use and as speedily discarded.

On a SCALE to find CRANIAL INDICES.

By GEORGE M. ATKINSON, Esq.

I have pleasure in submitting a scale constructed to show quickly a method for finding the relative decimal fraction

between the diameters of skulls, *i.e.*, the cephalic and other indices, which are indicated by a numerical expression.

First, to construct the cephalic, or latitudinal, index scale. Take a line, say 8 inches long, A ; divide it into 100 equal parts ; this I suppose to be the longest measure I shall require. I draw another line, 6 inches long, B ; making an angle of about 30° with this line. This I consider the length of the shortest skull I shall require to measure. Join the extremities of these lines and form the triangle, OAB. (See Plate.)

I cut the base line, AB, from the apex or centre, O ; in points at distances increasing from 6 inches, successively one-tenth of an inch (or any distance found convenient) ; and I draw lines radiating from the O point to those divisions, the lines thus somewhat resembling a fan. From the different 100 points or divisions set off on the first line, OA, draw lines parallel to the base. These will cut each radiating line into 100 equal parts, by the well-known problem of similar triangles.

To use the scale and find the cephalic index. Measure with callipers the long diameter, from the ophryon, or centre of supra-orbital line, to the most distant part of the occiput ; and set it off on the scale from the point O, to cut the base of the triangle. The point of intersection is the standard, and is divided into 100 parts. Take the short diameter, the greatest breadth in the parietal region, with the callipers, and place it upon the same line. I find it gives me (perhaps) a distance reaching 80. This in an instant gives me the fraction of 80 to 100, and I can classify the skull as long or short.

The altitudinal index (the ratio of height to length, the latter being as before found—100) is determined by taking the distance from basion or anterior margin of foramen magnum to the bregma, or junction of the coronal and sagittal sutures. This length, if applied from the O point, on the already obtained scale line, will enable me to determine this fraction. Practically we seldom require to find a fraction under 60 : therefore the rest of the triangle is available for the construction on the same principle of a method for finding the Gnathic index.

For facility of division I use the line drawn from the O point, to the point 7.10 on the base line AB, and upon it set off, from the apex O, a distance equal to 10 centimetres, and divide it into 100 equal parts ; on the line drawn through this "100" point, parallel to the base line AB : the basi-nasal length from O point is applied for indexing. But as many skulls are prognathous, it is necessary to extend the divisions or units to perhaps 115 parts ; I stop at the line marking the 60 part of the cephalic index, and complete this scale by drawing through the

different divisions (beginning at 80) lines parallel to the index line and continuing to the 108 division.

Should the length from the basion to the alveolar point exceed the divisions given on the scale, we can determine the relation, by taking from the already found indexed "100," point on the index line; the distance to the point of the basi-alveolar length measured off, and, with the compass reversing it on the same scale line. We can ascertain, by counting over the distance backwards, the number of units; which number, plus 100, will express the fraction showing the degree of prognathism.

As the extreme measurements on this scale are not long, it is not necessary to continue the lines up beyond the radiating line from O to 6·30.

On the remaining unoccupied portion of the triangle, the nasal index scale can be placed, and for facility of division I take my 100, distance point equal to 50 millimetres (the average height of the nasal aperture measured from the nasion or centre of the fronto-nasal suture to the lower border of the aperture or base of the nasal spine), on the line drawn radiating from O to point 7, drawing a line through it parallel to the base AB, and extended to cut the lines forming the sides of the triangle; on this line the nasal height from O, is measured.

As the width of the nasal aperture to the height determines the index for classification, the line drawn parallel to the base at the 50 divisional unit point will be the index line; and lines drawn parallel, through the divisions marked from Nos. 40 to 70, will be all that are required to complete this scale.

The orbital index is constructed in a similar manner, but I find it advisable to use a small second triangle; the sides being respectively equal to the length of the longest and shortest orbit I am likely to measure, dividing them into 100 equal parts and using the base and the O point for radial lines 1, 2, 3, 4, 5, 6, 7, 8, 9, and proceeding as explained in the cephalic index.

The scale for determining the comparative widths of the skull can be added, and as the measurements generally fall between 4 and 6 inches, I utilize the side B of the cephalic scale already divided into 100 equal parts, and produce the side of the small triangle used for the orbital index scale, marking it off 4 inches long. By joining the extremities of these lines, and proceeding in a similar manner to what has been before explained when constructing the cephalic index, we get a scale that will enable us to determine the comparative widths of the skull; the greater width, between the parietal eminences, being reckoned as 100.

In some races, the width between the zygomatic arches

measures more than that between the parietal bones. In which case produce the (parietal) 100, width, scale line; and mark off on it the zygomatic length; then measuring from the indexed "100," point outward to the overplus of the zygomatic arches, and reversing from the indexed point, the compass open at this distance on the same scale line, we can count the number to add to 100, and enable us to express the relative proportionate fraction.

This scale can be used as a cephalic scale, for measuring the skulls of children.

Indices for measuring the palate, pelvis, &c., can be constructed by a similar process.

DISCUSSION.

Professor Flower thought that Mr. Atkinson's ingenious method of finding indices would be of much greater use if it could be so modified as to be applicable to all indices used by craniologists, and that it would be better to adapt it to the metrical system of measurement than to English inches, as the former was so much more generally used, and would ere long, he thought, become universal.

Acting on this suggestion a scale 200 millimetres long is given on the plate.

NOVEMBER 12TH, 1878.

JOHN EVANS, Esq., D.C.L., F.R.S., President, in the Chair.

The minutes of the previous meeting were read and confirmed.

The following new members were announced—M. J. GABRIEL, Esq., and G. H. RADFORD, Esq.

The following presents to the Library were announced, and thanks were ordered to be returned to the respective donors for the same:—

FOR THE LIBRARY.

From the ACADEMY.—Proceedings and Transactions of the Cracow Academy of Science. Vols. III and IV.

From the ACADEMY.—Atti della R. Accademia dei Lincei, Vol. II, Nos. 6 and 7; (Memoire). Vol. I, Part 1 and 2; (Transunti). Vol. I.

From the SOCIETY.—Journal of the Asiatic Society of Bengal. Vol. XLVI, Part 1, Nos. 2—4; Part 2, No. 3; Vol. XLVII, Part 1, No. 1; Part 2, Nos. 1, 2, and 4. Proceedings ditto, Nos. 7—10, 1877; Nos. 1—6, 1878.

From the ACADEMY.—Proceedings of the Davenport Academy of Natural Sciences. Vol. II, Part 1.

From the COMMISSION.—*Compte-rendu de la Commission Impériale Archéologique pour l'année 1875.* Avec un atlas.

From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. XXII, Nos. 4—6; Journal ditto, Vol. XLVII.

From the ACADEMY.—*Bulletin de l'Académie Impériale des Sciences de St. Petersbourg.* Vol. XXV, Nos. 1 and 2.

From the AUTHOR.—*Apuntes sobre las Tierras Patagonicas.* By Francisco P. Moreno.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—*Zeitschrift für Ethnologie.* Nos. 2 and 3, 1878.

From the SOCIETY.—Transactions of the Society of Biblical Archaeology. Vol. VI, Part 1.

From Dr. PAUL BROCA.—*Revue d'Anthropologie.* Nos. 3 and 4, 1878.

From the MANX SOCIETY.—Records of St. Mark's Chapel.

From the AUTHOR.—*The Native Races of the Pacific Ocean.* By Prof. W. H. Flower, F.R.S.

From the INSTITUTE.—The Canadian Journal. Vol. XV, No. 7.

From the SOCIETY.—Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. X, Part 3.

From the SOCIETY.—Proceedings of the Society of Antiquaries of London. Vol. VII, No. 4.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XXII, No. 96.

From the INSTITUTE.—Report of Proceedings of the Royal Colonial Institute. Vol. IX.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXVII, Nos. 188 and 189.

From the INSTITUTION.—Journal of the Royal Institution of Cornwall. No. 19, Part 2.

From the INSTITUTE.—Transactions and Proceedings of the New Zealand Institute. Vol. X.

From the ACADEMY.—*Bulletin de l'Académie Royale de Copenhagan.* No. 3, 1876—7.

From the SOCIETY.—*Bulletin de la Société Impériale des Naturalistes de Moscow.* No. 1, 1878.

From the EDITOR.—*Archiv für Anthropologie.* June, 1878.

From the SOCIETY.—*Jahrbuch der K.K. Geologischen Reichsanstalt.* Vol. XXVIII, Nos. 1 and 2; *Verhandlungen ditto*—Vol. XXVIII. Nos. 1—10, 1878.

From the SOCIETY.—*Mittheilungen der Anthropologischen Gesellschaft in Wien.* Vol. VIII, Nos. 1—4.

From the CLUB.—Proceedings of the Berwickshire Naturalists' Club. Vol. VIII, No. 2.

From the CONGRESS.—Transactions of the International Medical Congress, Philadelphia, 1876.

From the INDIA OFFICE.—A Memoir on the Indian Surveys 2nd edition. By Clements R. Markham, C.B., F.R.S.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. Vol. IV, Nos. 33 and 34.

From the SOCIETY.—Transactions of the Asiatic Society of Japan. Vol. VI, Part 1.

From W. L. STONE, Esq.—The Magazine of American History, for September, 1878.

From the AUTHOR.—*Étude sur les Crânes boughis et dayaks du Museum d'Histoire Naturelle.* By Dr. Montano.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris. Vol. I (3 series), No. 2

From the SOCIETY.—Proceedings of the Philosophical Society of Glasgow. Vol X, No. 1.

From the AUTHOR.—The Geology of Ireland. By G. H. Kinahan, M.R.I.A.

From the SOCIETY.—Proceedings of the American Philosophical Society. Vol. XVII, No. 101; Catalogue of Library, ditto, Part 3.

From the SOCIETY.—Transactions of the Royal Society of Literature. Vol. XI, Part 3.

From Prof. F. V. HAYDEN.—Bibliography of North American Invertebrate Palæontology.

From the AUTHOR.—The Method of Manufacture of Several Articles by the former Indians of Southern California. By Paul Schumacher.

From W. L. DISTANT, Esq.—*Recherches expérimentales sur les Variations de Volume du Crâne; Céphalomètre de Poche ou compas des Coordonnées; Recherches expérimentales sur l'inégalité des régions correspondantes du Crâne.* By Dr. Gustave le Bon.

From the AUTHOR.—On the Mineralogy of Nevada; Notes on Zoology; List of Mammals found in the vicinity of Grand River, D.T.; Ancient Hearths and Modern Indian Remains in the Missouri Valley; General notes on Anthropology. By Dr. W. J. Hoffman.

From the AUTHOR.—*Studi Antropologici intorno ad uno Scheletro di accinese; Saggio di Aleuni studi intorno ai crani della toscana.* By Dr. Paolo Riccardi.

From the AUTHOR.—*Il Terzo Molare Nelle Razze Umane ricerche.* By Prof. P. Mantegazza.

From the AUTHOR.—Notes on a Collection from the Ancient Cemetery at the Bay of Chacota, Peru. By John H. Blake.

From the ASSOCIATION.—Report and Transactions of the Devonshire Association. Vol. X.

From G. G. RUTHERFORD Esq.—*Album der Deutschen Gesellschaft zur Erforschung Aequatorial-Afrikas.*

From the EDITOR.—*Revue Internationale des Sciences.* Nos. 28—45, 1878.

From the EDITOR.—*Revue Scientifique.* Nos. 1—19, 1878.

From the EDITOR.—“*Nature*” (to date).

Mr. ROBERT CUST read the following :

REPORT on ANTHROPOLOGICAL PROCEEDINGS at the ORIENTAL CONGRESS held at FLORENCE, September 12—18, 1878.

The Society has done me the honour of making me for the second time their delegate at an Oriental Congress. I regret that on my return from St. Petersburg, in 1876, I did not express my readiness to communicate any interesting points which had been discussed there; in fact, I awaited the arrival of the printed Report of the Proceedings, as the greatest portion of the discussions took place in Russian, was not interpreted at the time, and to this day no Report has been published; although Messrs. Brill, of Leiden, assure me that one will be published in the first days of January, 1879.

Warned by the past, I came before your Society on this occasion with an immediate, though perhaps imperfect, report of some of the interesting topics discussed at Florence in the month of September. I am assured by your Director that Philology is clearly recognised as a branch of your science. The familiar languages of Italian, French, and German, and the assistance of the “*Bulletino*,” published within a week of the close of the Congress, have enabled me to speak with some degree of certainty of the nature of the topics, though I am unable to supply the details and the arguments.

The pages of the *Times*, the *Athenæum*, and the *Academy*, will have informed you of the general outline of the proceedings of the Congress. It was attended by the greatest Oriental scholars of Europe, exceeding 100 in number, with some notable exceptions. Great harmony prevailed, and the only regret was that the time was too short for the work to be done.

The Congress was divided into seven sections, meeting separately and, by the necessity of the case, at the same hour in some instances; therefore no person could be present at all the meetings. Some scholars were satisfied with their own section; I should have liked to have attended all.

The sections were:—

- I. Egyptology and North Africa, or Chamitic.
- II. Ancient Semitic, or Assyrian and Hebrew.

- III. Modern Semitic, or Arabic of the Mohamedans.
- IV. Indo-European and Iranic.
- V. Indian.
- VI. Altaic.
- VII. Chinese, Japanese, and Indo-Chinese.

This grouping was not based on scientific considerations, neither was it exhaustive, but it suited the convenience of this particular Congress, which had to adjust its subdivisions to the requirements of the scholars present, and the number of communications sent in. In the elections of presidents, vice-presidents, and secretaries of sections, national and personal considerations had to be kept in view, for, while it was just and proper that there should be an Italian in the bureau of every section, it was not desirable to let any one nation get a preponderance in any section. On the whole, a very satisfactory cast was made.

In the first section an interesting fact was stated by M. Mas-
hero and Professor Sapeto: that in the speech of some of the
Negro tribes on the Blue Nile, the *clicks*, which were deemed a
peculiarity of South African speech, are detected, and more than
this, that an increase or diminution of the prevalence of this
linguistic feature could be remarked as the traveller advances
towards or from Central Africa.

Another remarkable fact became the subject of discussion, and we await with some interest the fuller details which the report will supply. Professor Lieblein, of Christiania, noticed the Egyptian antiquities, which had been disinterred in Sardinia; and Signor Fabiani exhibited specimens of others found in a tomb at Rome, under the wall of Servius Tullus. The remains were chiefly Egyptian Divinities. It was argued by Fabiani, that the site of Rome must have been occupied at a date anterior to the well-known era of "Urbs Condita." Phœnician remains were also found, supporting the hypothesis that there must have been a Phœnician and Egyptian influence in the pre-historic Italian civilisation. Many distinguished scholars took part in this discussion.

M. Lenormant proposed at this section that in future Congresses, Oriental Archæology should have its place as well as Philology. It may suggest itself to this Institute, that a still further expansion should be given to the subject-matter of such Congresses, so as to include the Religions, Primitive Culture, Peculiar Customs, and Folklore, of Oriental peoples.

In the second section, Lenormant read a paper on the Myth of Tammuz (Adonis), as illustrated by Cuneiform inscriptions. M. Oppert gave a long discussion on the Chronology of the Book of

Genesis. M. Renan communicated his views on the subject of certain Phoenician and Aramean Graphit found by Mariette Bey, at Abydos, in Egypt. Many other topics of minor interest were discussed, but they are noticed in the Bulletins with such brevity that it is impossible to form an accurate opinion as to their nature.

In the third or modern Semitic section, no subject was handled worthy of notice, even the briefest; a certain number of Professors brought forward papers on petty points of purely literary interest. A very sensible proposal, however, was made by one member, that the Oriental Congresses had outlived the purely philological period, and should in future comprehend the Judicial Institutions of a Country, as the civilisation and consequent happiness of any people depend a good deal upon them. No doubt this was a move in the right direction; but if nice judicial disquisitions were substituted for petty literary discussions, science would not greatly gain, and the pedantry of Lawyers might, if uncontrolled, be as irksome as the pedantry of Professors.

In the fourth, or Indo-European, section, the subjects were more interesting. M. Oppert read a really important paper on the mode in which the alphabetic Cuneiform characters of the old Persian inscriptions were derived from the ideographic characters of the earlier Cuneiform system by the acrostichic process. Professor Schieffner, of St. Petersburg, made observations on certain properties of the Caucasian languages. He entered into a technical analysis of the morphological structure of these languages, contrasting them with the German and Latin. The publication of this paper by so great an authority on so difficult a subject will be looked forward to with the highest interest. Professor Ascoli, of Milan, by far the greatest of the Italian scholars, joined in the discussion that followed, which opened out some of the hardest questions of Glottology, such as the real origin of internal flexion, which Ascoli attributed, as far as we can gather from the brief account given, to the effect of the assimilation of the vowel to that of a post-positive element, which had subsequently disappeared.

The subject of the language of the Zingari or Gipsies brought on a discussion, in which Professor Balbu Costantinesco, of Bucharest, and Mr. Leland (Hans Brietmann) joined, assisted by Professor Ascoli, who was master of this, as of so many other subjects.

Professor Pizzi, of Parma, then started a remarkable theory, that the Zendic word "karet" appears in all the names of cutting instruments in Asia and Europe. His leading idea was to show how Philology came to the aid of Prehistoric Science in

the discovery and explanations of phenomena of primitive history.

Mr. E. L. Brandreth closed the session with a paper on certain resemblances between the Neo-Aryan Language of Northern India, and the Romance Languages of Europe. The conception, though not entirely original, has never been fully worked out, as it now promises to be. In the same way as the Sanskrit language, when it ceased to be a colloquial medium, was replaced by a group of Sanskritic, or Neo-Aryan vernaculars, viz., the well-known Hindi, Bengali, Urya, Marathi, Sindhi, &c., &c., the Latin language, when it ceased to be a living speech, was replaced by a group of Romance vernaculars, Italian, Spanish, French, Wallachian, &c., &c. But the curious feature is, that in both groups the same linguistic expedients to effect the transition from a synthetic to an analytic language can be traced; and, more than this, certain languages of each group seem to have undergone analogous phonetic influences, viz., the Sindhi and Italian, the Hindi and the French.

Dr. Leitner, who had been specially deputed by the Viceroy of India to attend this Congress, delivered an interesting lecture in the Museum of the Congress on the subject of the selection of the Græco-Buddhist Sculptures and other Antiquities, which he had disinterred in the trans-Indian Districts of the Punjab, and brought with him from India. Upon these remarkable monuments, and upon the dialects of the mountaineers of the neighbouring hills, which he had been the first to describe, he based certain theories regarding the connexion of the Indian and Greek Mythology, at a period previous to the Christian era. The subject was a very large one indeed, and the learned Doctor was the only member of the Congress who had the facility of speaking all the four languages, and he glided from one to the other to adapt himself to his particular hearer. A wish was expressed by the meeting that the Government of India would publish a description of all such monumental remains, and all definite opinions must be suspended till then.

In the Indian section, Professor Rudolph Roth read an interesting paper on the newly-discovered manuscript of the fourth or Atharva Veda, in the Valley of Kashmîr, written in the peculiar variation of the Indian character; the discrepancies between this and other manuscripts was very marked.

Mr. Robert Cust read a paper on the Neo-Aryan Language of India with a view of drawing attention to the important, but rather neglected, subject. The Aryan languages are so celebrated, and spoken by such an overwhelming majority of the people of India, that it is often forgotten that five other families exist, comprising scores of languages, spoken by many millions

over an immense area. These families are the Dravidian, Kolarian, Tibeto-Burman, Tai, and Mon-Anam, some of which are of the agglutinative, and others of the monosyllabic order. An address was voted by this section to the Viceroy of India, soliciting the compilation of a volume of the Proverbs of the Indian people.

In the Altaic section, notwithstanding the presence of some very distinguished men, the subjects discussed were neither numerous nor interesting. Arminius Vambery, of Buda Pesth, read a paper on the Primitive Culture of the Turko-Tartar race. Dr. Donner, of Helsingfors, discussed the question of the connection of the Finnic language with that of the Samoides.

In the Chinese section, Dr. Legge read a paper on the state of Chinese studies, and what was wanted to complete the analysis of the Chinese written characters, which he described as being of incredible antiquity. He remarked that the fetters of this character prevented the language from getting beyond the monosyllabic stage.

Mr. Van der Gabelentz read a paper on the possibility of proving the existence of a genealogical affinity between the languages called Indo-Chinese. The languages referred to in this paper are the languages and dialects spoken in China, Tibet, Assam, and the trans-Gangetic Peninsula. Representing principally, according to common opinion, the isolating system, these languages, in their phonetic appearance, show the signs of advanced corruption, and are separated from each other by rules of position often diametrically opposite. He then inquired whether there is any morphological resemblance between these languages; any phonetic parallelism (*laut-verschiebungsgesetze*). He considers that there is. The first thing that strikes us is the monosyllabic character common to them all, and which distinguishes them from the Ural-Altaic, Japanese, Corean, Aino, and Malayo-Polynesian languages. The type, no doubt, is less pronounced in some than in others. The Tai is more monosyllabic than the Tibetan; the latter more than the Naga dialects. There is also the idiom of the Vayu, of which the conjugation resembles in some respects that of the incorporating languages. Again, in these languages there are several homophones, and these homophones correspond to a remarkable extent between the different languages. This cannot be by chance. He claims for the written Tibetan the most ancient forms of the words. He finds traces of suffixes in ancient Chinese.

I have thus, in the time allotted to me, noticed the most important topics discussed at the late Congress. It would not be just to form any fixed opinion until the actual text of the communications is in our hands, as it soon will be. The range is

very considerable, and it is impossible not to admire the earnestness and devotion of the great scholars of Europe in their several departments of science. It is to be regretted that so many are men of a single subject, shutting their eyes absolutely upon all that lies beyond their particular study. Perhaps this is necessary to secure accuracy, and actual advance in knowledge. The days of omniscient *savants* is passed. The division of scholars into National parties is the safeguard of Truth. When French and German scholars agree in a discovery, it may be accepted as a fact.

DISCUSSION.

Mr. Cust remarked, with regard to the suggestion that the French language should be exclusively used in International Congresses, that the objection was, that it placed the representatives of other nations at a disadvantage, when brought into collision in argument with French, Swiss, or Belgians. It was as much as most men could do, and more than many men could do, to be courteous, and yet incisive in their own language, and no one liked to make such blunders as expose him to ridicule; and yet nothing but constant practice could prevent such happening. The only fair way was to let every one speak his own language, and have a good interpreter, where required.

Mr. J. PARK HARRISON, M.A., read a paper "On some Characters Tattooed on a Motu Woman." The publication of this paper is postponed for the present, Mr. Harrison awaiting further information.

STONES and BONES from EGYPT and MIDIAN.

By Captain R. F. BURTON, H.M. Consul at Trieste.

SIR JOHN LUBBOCK ("Notes on the Discovery of Stone Implements in Egypt;" "Journ. Anthropol. Inst." Vol. IV, December, 1873) tells us that M. Arcelin, in February, 1869, communicated a note to the periodical, *Matériaux pour l'Histoire de l'Homme*, announcing that he and the Vicomte de Murard had found in sundry parts of the Nile Valley rude stone implements resembling those of Western Europe. The only opinion expressed concerning their age was that they are not ancient. In a subsequent Report to the Minister of Public Instruction (June 26, 1869), also published by the *Matériaux*, the same writer concludes that Egypt generally possessed *une industrie*

fort ancienne, probablement préhistorique; and in particular that the station Abú Mangar, a little below Syene, had yielded specimens bearing the well-known characteristics of the neolithic or polished Stone-age. He replied to all objectors in *L'Age de Pierre et la classification préhistorique d'après les Sources Égyptiennes*, 1872; and in the *Correspondant*, 1873, his paper, "La Question Préhistorique," summed up the subject. MM. Hamy and Lenormant communicated also in 1869 to the Société d'Anthropologie of Paris ("Bull." p. 685 of 1869; and p. 15, Vol. V, 1870), the discovery of rude silexes, hatchettes, couteaux, grattoirs, perçoirs, nucleus (cores), percuteurs (hammers), &c., on the hills overlooking the "Tombs of the Kings" (Thebes), and subsequently a hatchet of the St. Acheul type at Dayr el-Bahari. In his conviction that these specimens belonged to the true Stone-age, M. Hamy was supported by MM. Broca and de Mortillet. Dr. Gaillardot, of Cairo, also asserted that worked flints with bones and charcoal have been picked up by M. Prisse d'Avesne in the raised terraces of clay about "Manga" (Abú Mangar?) at Assouan (Syene), and in the crevices of Jebel Silsilah.* This savant sees no reason why man should not have been coëval with the powerful quaternary vegetation bordering on the Great River. M. Pruner Bey, though leaning to the same conclusion, required more evidence (*loc. cit.*, pp. 708-19).

On the other hand, Dr. R. Lepsius, *Ueber die Annahme einer sogenannten prähistorischen Steinaltäten in Ägypten*, boldly expresses the opinion that these flint flakes are natural fragments splintered by the action of the sun and by excessive alternations of temperature. He asks† why, if they be the produce of industry, hundreds and thousands of perfect and serviceable instruments should have been left neglected on the ground, as if unworthy to be picked up? He also wants to know "why better worked specimens have not been met with?" and here we may object to him the finds of "Helwán." He doubts whether the so-called "scrapers" could ever have been used for scraping. He maintains (*loc. cit.*, p. 113) that the secondary fractures, or chippings, on many of the supposed implements are fresher, of a different colour, and therefore more recent than the main cleavage. Moreover, as Rosellini, the companion of Champollion, mentions that flint flakes had on several occasions been met with in conjunction with mummies; and as he himself had found six flakes in the tomb of Snetemhet, a functionary of the fifth Dynasty; and as, lastly, stone knives were used for

* "Bull. de l'Inst. Égyptien," No. 13, p. 58.

† "Zeitschrift f. Ägyp. Sprache und Alterthumskunde," 1870. See also "Berliner Ges. für. Anth., Ethn., und Ungeschichte," Mar. 1873.

ceremonial purposes, for instance, in the circumcision borrowed from the Egyptians by the Jews,* even during historical periods, the German savant concludes that, granting these implements to be of human origin, they would afford no evidence of an Egyptian Stone-age. To all these objections Sir John Lubbock (*loc. cit.*) replies categorically :† 1. What are found in such suspicious abundance are *waste flakes*, with here and there an unfinished implement, or part of an implement. Bâb el-Mulûk (Thebes), and Abydos, exactly resemble in this respect Pressigny, Grimes Graves, and other Stone-age settlements or camps. And, if it be objected that a similar doubt applies to these, he adds that the same is true, *mutatis mutandis*, of manufactories where gun-flints are actually worked, as at Brandon or Meunes, and where modern savages (Australians and others) preserve the practice. 2. More finished specimens *do* occur; but, as might be expected where the palæolithic age prevails, they are rare. 3. As regards the scrapers, a similar implement is used for the same purpose by the modern Eskimos.‡ With respect to the colour of the fractures, Dr. Lipsius§ contented himself with only ten *Splittern*; and these specimens must have been exceptional. In the hundreds examined by the Englishman, and in the 35 implements exhibited to the Anthropological Institute, “the fractures are similarly coloured and obviously coëval.”

M. Chabas,|| who denies a Stone-age to Europe, expressed a decided opinion, part of a general theory, that many of the Egyptian implements are due to natural solar action; and that those of human workmanship, as the specimens figured by M. Arcelin, are of comparatively modern date. He believes that they belong to the times of the Pharaohs, and that they do not point to the existence of an Egyptian Stone-age. But M. Chabas, a distinguished Archæologist and Egyptologist, has made no special studies of flint implements. Thus he figures a steatite knife inscribed *Sam oer Kherp abon, Ptahmes* (the great Sam, the chief of artists, Ptahmes), and which consequently cannot be earlier than the Saïte ¶ Dynasty (Psametik, &c., B.C. 664–525). But Sir John Lubbock points out (*loc. cit.*): 1. That this specimen does not show the characteristic Stone-age form; that similar tools were used for incising the side of the

* Egypt also circumcised with the flint knife.

† See also Maury, “Bull. Soc. Anthropol.” p. 711. Paris, 1865.

‡ “Prehistoric Times,” 3rd ed., p. 97. See also No. 2, Specimens, p. 6. “Notes Anthropol. Inst.”

§ *Loc. cit.*, p. 95.

|| “*Etudes sur l’Antiquité historique*,” Paris, 1872.

¶ In the original “*Scrite*.”

corpse before burial, and consequently that the date assigned may be true. 2. That the legend is no proof that where a bronze implement, like the celt in the Museum Kircherianum (Rome), was cast with an inscription, the latter must be contemporary, but that letters can be engraved at any period: for instance, there is a German stone axe with an inscription of the sixteenth century; but no one would consider this a proof that stone axes were used in Germany 300 years ago.

M. Chabas asks with surprise, what could have been the use of the small flakes formed in Egypt and elsewhere, except they were *des essais d'habiles ouvriers cherchant à vaincre des difficultés dans leur art?* This is the style of illustration which the logicians called *obscurum per obscurius*. Sir John Lubbock replies that these *éclats* served for various purposes—for preparing clothes, for arrow-piles, spear-points and javelin heads; also they were let into slits in the sides of flat wooden sword-blades.* And he justly remarks that no one who has specially studied stone implements can have the slightest difficulty in distinguishing between the natural and the artificial.

The highly distinguished M. Auguste Mariette Bey is exceedingly reserved upon the subject, and he is evidently right to speak only of that he has seen during his life-long experience in excavation. He evidently, however, leans to the theory that the flint implements belong to the historic age.†

He remarks (Notice, &c., 6th edit., pp. 81-2): "The question of a Stone-age in Egypt is not yet resolved. Our collection, though certainly showing signs of the human hand, gives us no right to conclude, as so many have done, that these remains belong to the remote period vaguely characterized as prehistoric. Before pronouncing upon this point, we must carefully investigate the peculiar circumstances under which the monument was found. If the flint be taken from virgin ground where time has imprisoned it, the problem may be considered solved. On the other hand, when the silex is superficial, the marks of art have evidently no significance: in the most flourishing epochs of Egyptian civilisation flints may have been used as lance-heads and arrow-piles, or even as knives to incise the dead for mummies ('Herodotus').‡

"Now the latter is the condition of all the objects in the glass-

* Nilsson "On the Stone Age," Pl. VI, figs. 124-126. "Lubbock's Prehistoric Times," 3rd ed., p. 442, &c.

† "Bull. de l'Inst. Égyptien," 1869-71: quoted in the "Matériaux pour l'Histoire de l'Homme," 1874, p. 16.

‡ The same prejudice in favour of ancient and primitive custom; in fact, a survival, a "superstition" in the literal sense, perhaps induced the Israelites to retain the flint circumcision knife, till a late period of their national life.

case AY;* they were found on or near the surface, and consequently it would be rash to date them. Under the burning suns, and during the dew-drenched nights of Egypt, the *patina* is so easily formed that it is no proof of age; the flints may belong to the Pharaohnic eras, to the time of the Greeks, or even to the Arab epoch. We do not, therefore, exhibit them as prehistoric remains: we simply collect and prepare the elements for discussing a question which is still *sub judice*.

Sir John Lubbock, being "extremely anxious to visit the interesting spots, and by an inspection of the localities themselves, to form, if possible, an independent judgment," visited Egypt in the autumn of 1872. He found worked flints at various spots along the Nile, especially in the Valley of the "Tombs of the Kings" (Thebes) and at Abydos, and generally on the slopes of the hills, and on the lower plateaux above the level of the inundation, wherever flint was abundant and of good quality. He had no opportunity of verifying M. Arcelin's important observation at Abú Mangar: *le gisement se prolonge sous les sédiments modernes; et ne passe pas dans ces sédiments ou je n'ai trouvé aucune trace de pierre taillée*; but he could affirm that the layer of flint implements did not extend over, nor, as far as he could see, into, the alluvial soil.

In replying to the question whether these implements are prehistoric, belonging to a true Stone-age, or whether they are referable to more recent epochs, our author "sees no reason to believe that since the time of Menes, stone has been habitually used in Egypt for cutting purposes." In the ancient ruins, and the immense rubbish heaps, veritable hills which mark the sites of Egyptian cities and towns, he found broken pottery and bits of raw brick strewn about in wonderful profusion, while fragments of stone implements were entirely wanting. He justly considers this "a stronger argument than might at first sight appear, against the general use of stone implements in historical times." Similarly, Dr. Gaillardot (*loc. cit.*) asserts that nowhere in Egypt has been found the medley of worked stones and metals like that which occurs at Hissarlik. Dr. Schliemann ascertained in

* The collection in the Bulák Museum (*Salle de l'Est, Vitrine AY*), mostly palæolithic, is divided into the following five parts:—

1. Pierced agate, etc., rough spear-heads and flakes, from the plateau-summit of the Bibán el-Mulük, the Valley of the Kings at Thebes.
2. M. de la Noue's finds (chiefly rough flakes and cores) at Jebel-Kalabiyyah, near Esneh.
3. The collection of the same geologist from Girget or Girgeh (only cores).
4. The flints of Halwán, presented by Dr. Reil; and
5. Miscellaneous finds from the Necropolis, especially the tombs of the Greek epoch, consisting of four polished stones and six flakes, the central and winged and tang'd arrow-head. My collaborateur, Mr. Hayns, has not yet been able to find out what Cities of the Dead are here alluded to.

the Troad the existence of a transitional period amongst the Pelasgi, since 3,500 years ago, when the people used arms of stone and brick huts, whereas the chiefs possessed gold, silver, copper, and stone buildings. Our author observes that the use of stone knives for opening corpses to be embalmed* may, like the Jewish circumcision knife, be a survival, a "superstition;" and the very fact of the old Egyptians refusing to substitute for it a newer substance (bronze, &c.) appears to him "an indication that they had passed through an Age of Stone, and had even made considerable advances in civilisation before they were acquainted with the use of metal."

Of the 25 specimens described by Sir John Lubbock (Plates XIII—XVII), he remarks that the forms closely resemble those of Western Europe. The figures are all of natural size; consequently more useful for comparison. The finds come from two places, Thebes and Abydos; they consist of one nucleus (core), one awl, and four scrapers, mostly spoon-shaped: No. 8 (Plate XIV, fig. 2) has a single central spine, and shows marks of use on both sides as well as at the end. The rest are flakes, flat and ridged, leaf-shaped and circular; many have the bulb of percussion well-marked, and the edges and extremities either chipped or bearing marks of wear. No. 18 (Plate XVI, fig. 1) is a chocolate-coloured leaf-shaped implement, closely resembling some of the St. Acheul specimens, but of rather fine workmanship; the shape being given by a great number of facets. The two following are also of the same type. Finally we may accept Sir John Lubbock when he says, "After carefully considering the facts, and arguments brought forward by MM. Lepsius and Chabas, I am disposed to agree with MM. Arcelin and Hamy in considering that these flint implements really belong to the Stone-age, and are ante-Pharaonic."

But it is a "very pretty quarrel as it stands," and the knotty question is not so easily settled. In this case we have more to debate than the normal three stages: uncritical acceptance, hyper-critical rejection, and discriminating belief. The thorough-going Egyptologist who holds, despite Herodotus, that "Art had no infancy in Egypt," has a personal aversion to a prehistoric Stone-age, which he denies *a priori*. He finds, it is true, that the stone-hatchet was adopted by the hieroglyphs and that it now represents (匚) "Nuter," a god. But he prefers to postulate a Kushite immigration, one of the wildest theories ever propounded by mortal man, in order to account for the

* The silex knives of the ancient Egyptians are well known. Wilkinson (II, 7) translates Ethiopic Stone (Obsidian?) by "flint;" and divides the implements into two forms, the broad-flat and the narrow-pointed.

Caucasian type and the Aryan "miscegenation" in the races and languages of Egypt. He begins by inventing a people settled somewhere near India. Having passed through the preliminary stages and reached the "apogee of its civilisation," this people emigrates bodily westward, leaving no trace of itself in the old home, no signs of its exodus, no notice in history. It reaches Egypt, falls to making pyramids and other masterpieces of the highest art which afterwards begin to decay and become Egyptian. Marvellous to relate, this is the belief of sound and ripe scholars; let me quote, for instance. Dr. Heinrich Brugsch-Bey.* These gentlemen ought to begin by telling us what was the indigenous name of the race which they call Kushite. We will then consider the reason why Asia has had its Stone-age, whilst Egypt its limitrophe has been privileged with a civilisation so different and so superior.

The "Solar theory," as I will term it, found many a doughty defender in Egypt. The expedition led by M. Gerhard Rohlfs to explore the Oases, and to traverse the wilderness between El-Siout and Kufra, which, by-the-by, was not reached, found the Libyan Desert, especially in the regions of the lower nummulites, covered with brown and black flint flakes. Their existence, by millions, is attributed to the violent heats of day and the cold of night in an atmosphere whose radiation must be excessive. None, however, had the characteristic forms of the worked silex; nor did the Desert furnish a single habitation of the Stone-age. Yet Dr. Zittel, the geologist of the expedition, found reason to believe that the wilderness was not unvisited by man at an early period. About 20 geographical miles west of the Dakhel Oasis, and in a country perfectly inaccessible to the people of the "Wadys," where the so-called Nubian grits (*grés de Nubie*) form the ground, and where, consequently, silex is rare, he picked up three flakes, long, thin, and three-ridged, "so common in the caverns of Périgord, in those of Germany, and in the prehistoric *ateliers* of Egypt." The extreme isolation of the site, and the rarity of the type, suggested certain doubts: these, however, were removed by the unanimous decision of MM. Fraas, Suess and Desor, and subsequently by the International Congress of Stockholm. Considering the enormous sheets of *travertino* (tuffs), near the Kharghah Oasis, as proving the existence of a flourishing vegetation during the diluvial period, Dr. Zittel is of opinion that the men of the Stone-age might in those days have crossed regions now inaccessible and uninhabited.

Dr. Schweinfurth and Güssfeldt are also inclined to believe that sudden and excessive changes of temperature may have

* See his "Ägypten," *passim*. See the excellent translation "A History of Egypt," by Messrs. Danby Seymour and Philip Smith. London: Murray, 1879.

produced what has been attributed to primitive handicraft. Early in 1876 the travellers visited the *Jebel Galálah* (*Kalat Allah*), "a region of mountains and depressions," which extends from the Suez Gulf, about the parallel of *Ras Za'faránah*, to the Nile, opposite the *Beni Suwayf* (*Suéf*) station.* Here are the convents of St. Anthony and St. Paul on the great African *Wady Arabah* (of the waggons), which bears those venerable buildings. The nummulitic plateaux, and especially the *Wady Senúr*, are strewn with immense quantities of silex, like those that metal whole tracts in the Lybian and Arabian deserts. The cores had been split to prisms by the abnormal variations of temperature; and, though none were worked, the cleavage was clean, as in our Museum specimens of Stone-age weapons.

In 1874 Dr. Gaillardot ("Bull." *loc. cit.*) who, however, accepts the Egyptologist view, ably resumes the precise actual state of the question as follows:—

1. *Ateliers* and prehistoric foci of silex manufacture have lately been found between Cairo and Assouan (*Syene*).† A bed, often several centimètres thick, and composed to a certain extent of flint flakes of all forms and sizes, has yielded worked implements, saws, knives, arrow-piles, lance-heads, wedges, hatchets, scrapers, and similar articles.

2. These *ateliers* represent, satisfactorily enough, the divers conditions which in Western Europe characterise those of the stone-cutting age. They occupy the plateaux crowning the hills that form the old geological river-bank, and they often cover considerable space. Till the present time they have been found only in the environs of great cities. No conclusion, however, must be drawn from this fact: they have not yet been sought elsewhere; no exploration of the Nile banks has been pushed by excavation beyond the great centres of ancient population; and we have still to investigate, not only the ancient alluvia, but the mountain chains that part the Nile Valley from the Red Sea and the Lybian Desert. The latter during the quaternary period were, in conditions of climate and vegetation, very different from the present.

3. The implements, as well as the *ateliers* of Egypt, are

* Lithographed sheets describing the trip were issued in Cairo, May 20th, 1876. Notices were also sent to "The Academy" (May 27th, p. 511; and June 3rd, p. 534). In July 5th, 1877, Dr. Paul Güssfeldt began a formal description of his excursion in the late Petermann's *Mittheilungen*. Dr. Gg. Schweinfurth also printed (without place or date) an interesting illustrated pamphlet *Die ältesten Klöster der Christenheit* (St. Antonius und St. Paulus). In "The Gold Mines of Midian" (Chapter iii) I have proposed this block of hills as a Sanitarium.

† The Hamámát collection in the Citadel of Cairo contains a fine axe, slightly injured, which was picked up in the Long Valley. See "The Land of Midian Revisited," for a notice of this mineralogical collection.

absolutely those of the European paleolithic age. There is complete identity in the number and variety of types; in the form, the workmanship and even in the minutest of details, such as the re-working (*la retouche*). We cannot believe all this to be the effect of mere chance.

4. To judge from the great mass of *débris* constituting the few *ateliers* of fabrication which have as yet been explored, and which will be discovered in far greater numbers, the amount of implements produced has been enormous. At the same time, outside of these centres a relatively insignificant number has occurred in the ruins, the tombs, and the earthworks disposed along the stream. It would, doubtless, have been far otherwise had the use of the worked stones been continued by the poorer classes, that is the mass of the population, during the thousands of years which have elapsed between the earliest historic ages of the Nile Valley, and an epoch not far removed from our own. Had such been the case, we should have found, as at Hisárik, the mixture of the two epochs the Stone implement and the Metal instrument; moreover, the first would have lost their predominance, and become rarer as modern ages were approached.

5. Accepting the important and generally recognised fact that "there is no infancy of Art in Egypt"; that the most ancient monuments and manufactures are those which bear the impress of the highest civilisation; whereas, on the contrary, those which follow show signs of marked decadence; we must hold that the old Egyptians settled in the Nile Valley in remote times, but long after they had emerged from the prehistoric period; in fact, when they had risen to the zenith of their ethnic cultivation. Hence we believe that the flint implements were not brought by them.

6. The conclusions warranted by the facts here stated are as follows:—It is at present impossible to prove that a Stone-age existed in Egypt. But many considerations lead us to believe that the Valley of the Nile was occupied before the old Egyptian emigration by a savage tribe or tribes, living under conditions analogous with those whose history has been revealed to us by the caves of Western Europe.

It is hard to agree with the learned doctor upon the non-existence of a Stone-age in Egypt, when he subtilises the question by attributing the work to older Egyptians than the old Egyptians. And that a true Stone-age is known not only in the Nile Valley but in the adjacent provinces occupied by the old Egyptians is suggested by modern discovery in the "Desert of the Exodus,"* and in the Negeb (Negev) or "South Country" of

* London: Bell and Daldy, 1871.

Abraham and the Hebrews. Messrs. E. H. Palmer and C. F. Tyrwhitt Drake have practically settled the question by large finds of stone implements in the "Wady Igné, properly Gena, or as it is sometimes called, Wady Maghárah," well known for its mines and tablets. "Flints are found in large numbers near the monuments of Sarábit el-Khádim, but do not exist at the other Egyptian mines of Sinai, where no hieroglyphic tablets have been placed" (p. 197). Mr. Bauerman, in a communication to the Manchester Literary and Philosophical Society, had already propounded a theory that the flints were probably employed in the sculpture of the hieroglyphic tables. Prof. Palmer believes that the large caverns or galleries, cut out with vast labour in the steep walls of sandstone, were made with "chisels of bronze, or other hard metal, and not the flint flakes, which are found in such quantities in the vicinity. The Egyptians, we know, were expert metallurgists, and flint implements could hardly have made such marks as those visible on the stone." Both the travellers opine (p. 191) that the *graffiti*, so well known as "the Sinaitic Inscriptions," Aramaean, Arab, Greek, and European, were dotted in with sharp stones, but they do not allude to any discovery of flints near or about this section of the Wady Mukattab. In other places (p. 203) the inscriptions are for the most part chiselled. At Wady Wa'ará (p. 254), in the outlying districts of Sinai, they opened a "Námús" of the stone-circle class, a ring of upright slabs about three feet high. A smaller ellipse in the centre, contained the cist and the coffin; the skeleton was found lying in a doubled-up position and "accompanied by a few shells and worked flints." Such Nawámís (sing. *Námús*), or "Mosquito houses," are so called by the Sinaitic Arabs, the tradition being that they were built by the Children of Israel as a shelter from the Mosquito-plague sent from Heaven to punish their rebellion. These remains, evidently prehistoric, are of two classes (ably described in pp. 139-141, and figured in p. 317): the circular or beehive hut for the living, and the stone circle for the dead. The travellers apparently hold the ruins to be the permanent camp of an ancient pastoral people. I would suggest that of old they belonged to the Hutaym or Hitaym, the "broken tribe," one of whose divisions is still called the *Nawámisah*. This would support the hypothesis of my friends that Sinai was formerly peopled by other than a pure Arab race, and that the present Bedawin came over with the (Mohammedan) Conquest.

In the Tih Desert, north of Sinai, they found the hard unyielding soil "covered in many places with a carpet of small flints, which are so worn and polished by the fine detritus of sand, a constant sand-blast, as to resemble pieces of black glass"

(p. 287). In places, the soil of white gravel, covered with the coarse black silex, technically called by the Arabs a "Himádah," gives a melancholy prospect. Farther south occurred rounded bits of flint, which fell to fragments in the hand: this shows the working of some force not violent enough to scatter the pieces. Sudden expansion or contraction, in temperature varying between hoar-frost at night and 120° (F.) in the sun by day, explain the process, and subsequent burying in the agglutinating sand would produce a peculiar form of breccia.

At the southern edge of this rude wilderness, near the "Erweis el-Ebeirig," whose curious remains they would identify with the Israelitish Camp, Kibroth-Hattaawah (ha ta'avah) or "the Graves of Lust" (Num. xi, 33-35), they collected a number of flint arrow-heads, lying about some well-built Nawámís, and they concluded the spot to be "one of the ancient hill-pits so common in the country" (p. 312). Here, again, in one of those "quaint beehive huts," evidently a dwelling-house, they picked up "a flint arrow-head and some small shells" (p. 318). In the Nejeb, the "Telelat-el-'Anab," alias "Rujúm-el-Kurúm" (grape mounds, p. 352), are formed by sweeping together, in regular swathes which extend for miles, the flints that strew the ground: similarly, in the Hauran, grapes are, or rather were, trained along these heat-radiating mounds.

Still later, the Rev. F. W. Holland, in 1878, passing over the Tih Plateau, found "large numbers of flint flakes and arrow-heads, proving that this road was in ancient times much used." And he has little doubt that it was the route "followed by Abraham from the South Country to Egypt." (See paper, "A Journey on Foot through Arabia Petraea," read at the Geog. Section of the Brit. Assoc., August 15th, 1878.)

The Stone-age extended farther to the East and South; in fact, deep into Mádí (plur. Madi-an or Madi-na), which the Hebrews converted into "Midian." We know from the hieroglyphics* that the old Egyptians worked the northern parts for copper; and my two explorations have brought notices of some 32 ruins of cities and towns and villages. The destruction, like that of the Christian Churches in the Nejeb or South Country,† may date possibly from the invasion of the Saracenic Chosroes (A.D. 531-579), or the passage of the Caliph Omar (A.D. 651).

* "The Land of Midian Revisited," Chapter iv.

† This "Negeb," or "South Country," is not to be found under either names in Smith's "Dictionary of the Bible." The former term is borrowed from Genesis xx, 1, where Abraham is represented as going to "Erez ha Negeb" (or Nejeb). The LXX translates εἰγῆν πρὸς Αἴτα: the Arab. *ilá Beled el-Kiblati*; the Vulgate "in terram Australem" (so the translation of the Samaritan version); and the interpretation of the Greek version "in terram ad Africum."

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EGYPT AND MIDIAN.

Figs 1 & 2. Mahrakah
or rub Stone

4. Quartz injured by fire

3. Cone, speckled granite

5. Greenstone Axe

6-7. Scraper (M. Hayns)

And now a few words concerning the small collection of silex and stone implements which I brought back from Egypt and Midian.

Dr. Heinrich Brugsch-Bey was kind enough to give me a small box of "*Objets préhistoriques, provenance Thèbes.*" It contains five flint flakes, one apparently an awl, and another a fine arrow-head. There are four cowries, with backs broken and hollowed. Apparently this shell is often found throughout this region in conjunction with prehistoric instruments.* Of three bits of worn quartz, two are pierced, apparently for stringing, and the same is the case with an old corroded helix.

M. A. Lombard, proprietor of the Hôtel d'Helwan, obliged me with a pasteboard, to which are attached 51 flints, collected in the neighbourhood of the Thermæ. Of these, many have jagged and saw-like edges. The antiquary must be careful how in these days he makes purchases near Cairo, where the Arabs have learned "flint knapping" to perfection. From the Jebel el-Ahmar, also near Halwán, I have two tin cylinders full of flint flakes, apparently natural, collected for me by Mr. W. P. Hayns. Of these more presently.

The "finds" from the Pyramids consist of sundry hammers and a rude article for pounding grain. This Mahrákah or rub-stone is a prism with a flat base, somewhat worn, measuring in length, 10 cent. 5 mille.; in breadth, 5 cent. 6; and in height, 2 cent. 5. It is a rude lumpy article of hard drab-coloured grit.

The little collection from Midian is composed of :

A section of a shallow vase in fine alabaster, a bit of very careful work. In the tracing the inner rim is shown: the outside forms a regular curve.

A cylinder of spotted white and black granite (quartz, felspar, augite, hornblende, and a little mica), a very hard stone, taking a fine polish. This somewhat enigmatical find stands 1 cent. 45 high; the total diameter is 2 cent. 1; and across the upper part it is 1 cent. 45. The bore, bulging out at both extremities, shows a minimum breadth of 0 m. '005. It was found in the ruins of Umm 'Amil. Apparently it is similar to the pierced cones (not whorls), which M. Schliemann calls *carrouselen* (tops) or *vulkan* (volcano).

There are two hatchets:—

No. 1 is apparently of quartzose stone, much damaged by the action of fire, which has coloured with red and blackish-red the edges and the side not shown in the tracing. The

* The Bulak Museum contains specimens of what appear to be bronze imitations of cowries.

profile, if not broken on both faces, would represent a flattened prism.

No. 2 may either be an axe or a spear-head. The material is a fine hard greenstone, with white lines (quartz ?). It is also prismatic, and the chipping, especially of the edges and the convex side, is carefully and artistically done.

There are three flint flakes:—

No. 1 is a simple *éclat* showing the conchoidal fracture in the concave side, while the convex bears two ridges converging to a point. This is a very rude article, and I have hesitated to assume that it is the produce of art.

No. 2 a fine-worked piece of chocolate-red porphyry: smooth on the side not shown in the tracing. A single spine runs along the dorsum, with signs of a second to the right.

No. 3 is a fragment of fine leek-green jasper, with longitudinal white bands. The fracture is conchoidal, and the convex side shows a single ridge. The edges are chipped, and the base is evidently broken.

No. 4 is a bit of transparent rock-crystal (hyaline quartz), which might easily be mistaken for glass. It is shown to be artificial by the trimming of the neck, and the comparison with a flake that preserves the natural fracture, sets the subject at rest.

Of the worked stones two are balls:—

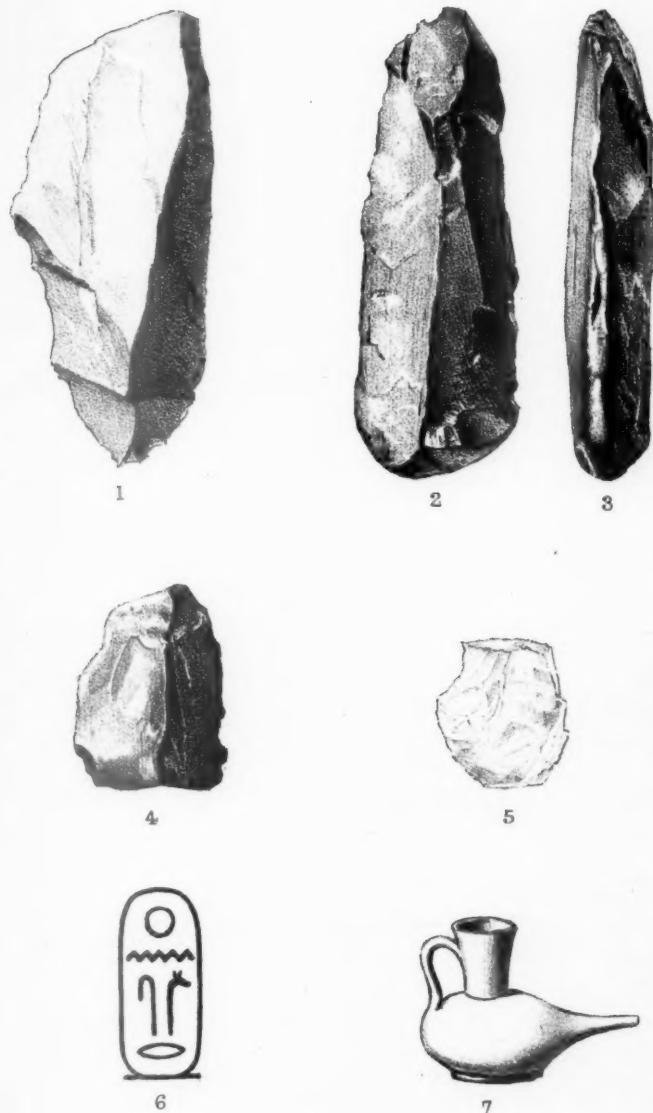
No. 1 is of fine white crystalline and saccharine marble, found at Magháir Shu'ayb: the Bedawin declare that it is the produce of the Jebel El-Lauz. From the latter I also brought away a slab of excellent marble, with part of a monumental inscription; it has been deposited in the British Museum. The diameter of this ball is 2 cent. 4 mille.; there is a scar on one side, and the part buried in the ground shows a brown tinge.

No. 2 is broken in half, a hard and homogeneous Serpentine, with smooth flattenings which may be due to use. It is thus a "spheroid oblate" at either pole.

Of the worked stones, one is a truncated cone of Chaledony-agate, inscribed with part of the Confession of Unity in rather peculiar Kufic. This has been described in "The Land of Midian Revisited," Chapter xii.

The Carnelian has also been described in "The Gold Mines of Midian," Chapter x. The cuts, which are hollow and groove-like, suggest the idea of a talisman, or a tree-Ogham.

There is also a crucible which may be of any age ("The Land of Midian Revisited," Chapter iii), and a fragment of what appears to have been a mortar; a useless looking affair of the lightest and most porous lava, and with a diameter of 1 cent. 7 mille. The pierced clay dish of the spindle-whorl type may



EGYPT AND MIDIAN.

Figs 1. 2. 3. 4. & 5. Flakes of Flint, Porphyry, Green Jasper and Rock Chrystal.
6. Cartouche. 7. Lamp.



also be either very old or very new. The same may be said of a small flat "button" of steatite,* a material much used, as in Brazilian Minas Geraes, by the moderns as well as the ancients of Midian. Of these soapstone articles a quantity was collected.

There are two enigmas: —

No. 1 is a pebble of quartz apparently worked into the shape of a cowrie with a hollow base shown in the tracing. No. 2 is somewhat similar, but the back has been planed down, and a dwarf druse shows a nest of little white crystals.

The handmills or querns you will find, I think, very remarkable. They are scattered amongst the ruins in thousands, it may be said, without exaggeration; and considerable violence must have been used to break them. The upper stones, with the double hole for the handle and for feeding the mill, are rare: they were probably carried off. The usual materials are the soft red sandstones of the Hismá, or inner region; porous lava, and hard stones, as granite. The finest specimens, probably used for quartz-crushing, were found in the South Country about the mines Umm el-Karáyát and Umm el-Haráb. They were of three kinds: the rough and coarse basaltic lavas served probably for the first and rudest work; red granite and Syenite granite for the next stage; and, lastly, an admirable handmill of the compactest of grey granite, smooth as glass and hard as iron. Around the pin-hole are raised and depressed concentric circles intended for ornament, and the "dishing" towards the rim is regular, as if turned by machinery. We saw nothing superior to the bit of work now submitted to you. All are nether mill-stones, so carefully smashed that one can hardly help suspecting the kind of superstitious feeling which suggested iconoclasm.

With respect to the remains of pottery, I would remark that, like the vessels found at Troy, some have been hand-moulded, others turned upon the wheel. The ground colour, ashy-grey, yellowish, red, dark-brown and black, varies according to the proportion of silica and iron oxide in the clay and the greater or less amount of the oxidation produced by burning. According to Dr. Schliemann ("Troy," p. 49), the beautiful black gloss of the Hellenic terra cotta, "consists of lamp-black or pure carbon." The clay vessels having been placed in slow furnaces in which

* *Lapis Ollaris*, the *pot-stone* or Siphnian Stone of which Pliny thus speaks: "On the Island of Siphnos there is a stone which is hollowed out and turned for vases; these latter are very useful for cooking viands or for the preservation of eatables, which, as we know, is the case with the *Connex Stone* in Italy. The Siphnian Stone has the peculiarity that, being heated, it becomes black by the contact of oil and much harder, it being naturally soft. It can be turned and used for ornaments." Dr. Schliemann found cones of this steatite, and plain cones and carved lentoids at Mykenæ; and in parts of the Brazilian interior it forms the usual kitchen-pottery.

resinous wood was burnt, and where there was consequently dense smoke, the latter descended upon the earthenware in the form of the finest powder, and was likewise burnt into the clay. It is also possible, but by no means probable, that they used a black pitch or asphalt, which was dissolved in oil of turpentine; perhaps they used liquid pitch, and painted the vessels with it. The burning of these would likewise produce coal-black, which in later times was called the *Atramentum indelibile* of Apelles." A lustrous black pottery was also produced by glazing with lead the clay after the latter had been well burnt. The brilliant red, in the so-called Samian ware, is only oxide of iron, a component part of the clay of which the cups are made.

It is regrettable that whilst the Italian antiquaries have carefully analysed their pottery (see the various studies of the Etruscan cemeteries by the learned Bolognese, Count Gozzadini), our English Archaeologists "see no good" in the work. This, and other signs of neglect, give our writings that painful sense of amateurish, dilettanteism, self-sufficient, and self-assertion withal, which contrast so unpleasantly with the works of the Southrons, in whom the archaeological sense is apparently instinctive and innate.

Fragments of glass were picked up in large quantities from the ruins of Midian; and the little collection shows two distinct periods. The modern is the blueish and bottle-green material which Hebron still manufactures. The ancient, procured by digging, is so much degraded and decomposed, the effect of damp, that sealing off and iridescence have supplanted the original texture and colour. Amongst the Greeks of the classical age there were many varieties. The dark-green or black-brown was made from the obsidians of Thera, Milos, &c., treated with soda, potash, and oxide of lead, to make the silex flow readily. The opaque-yellow was alumina mixed with iron oxide; and oxide of copper, or, possibly, malachite was added to form the blue variety. Cobalt also served for this purpose. Soda-glass or natron glass has the property of splitting into a multitude of small leaves or fragments. To produce lead-glaze, a protoxide of lead was used by way of alloy.

PART II.

Flint Hunting around Cairo.

WHILST literati were debating the pros and cons of a Stone-age in Egypt, practical men were finding worked stones in all directions, even around Cairo itself.

Dr. Gaillardot ("Bull." *loc. cit.*, p. 57) remarked that between Cairo and Suez certain tracts of desert surface are covered, as far as the eye can reach, with flint flakes, the produce, it is supposed, of atmospheric variation; and the dull grey colour of these patches attracted the attention of many travellers in former times when the overland vans ran on this line. Mr. H. P. Le Messurier, now of Cairo, found and collected a number of worked silexes about El-Awaybit, the central station, which stands some 800 feet above sea level. My present paper will notice various discoveries in other places about Cairo, especially near Halwán to the south-east; around the Pyramids west of the Nile; and about the *Jebel el-Ahmar*, south of the capital.

Halwán (*les bains*) is well known to travellers in Egypt, and the excellent paper of Mr. A. J. Jukes Browne,* accompanied by a ground plan, renders long description unnecessary. Nor need I notice the silex implements now exhibited, after the careful and accurate description of my predecessor. The little Egyptian village, which gives Halwán a name, lies on the right bank of Father Nile, embosomed in a forest of date trees: The modern establishment, distant from it four kilometres, and $15\frac{1}{2}$ miles from Cairo by rail, rises 33 metres above the mean level of the river: about as high, people say, as the tallest minaret in the Citadel. A canal, derived from the stream higher up, would make the whole of this section of Nile alluvium immensely productive; under the sand and *débris* appears everywhere the dark dry mud of the old river-bed. A few outlying bungalows lead to the *Établissement*, a large hollow building with a central court-yard which, when closed for the night, suggests the idea of a pretty "Queen's Bench." Its peculiarly offensive sulphur-baths recommend it to the rheumatic, the gouty, and the paralytic; the water cannot be bottled on account of its tendency to decompose; and the cold saline springs, which when filtered keep well, are compared with the bitter waters of Pullna and the Muhlbrunn of Karlsbad.

Halwán has a little history of its own, for which Dr. Reil† may be consulted. I may add to his notice that Colonel Howard Vyse ("Appendix to Operations," &c., Vol. III, p. 4),

* "On some Flint Implements from Egypt," "Journ. Anthropol. Inst." May, 1878. My paper was finished long before I had an opportunity of reading Mr. Browne's.

† "Les Eaux thermales salino-sulphureuses d'Helouan près du Caire, Egypte et Helouan comme Sanitarium," par le Dr. W. Reil, Directeur des Bains d'Helouan. "Le Caire Typ. Française Delbos-Demouret, 1874." Dr. Reil tells much about Halwán, but with typical Teutonic want of the practical, he does not say how far it is from Cairo, as if "quatre heures (Stunden?) de distance du Caire," were enough. Mr. A. J. Jukes Browne makes the *Jebel Torah* near El-Ma'sarah (not Ma'sara) in height "possibly 8,800 feet." This appears to me a monstrous exaggeration; possibly a typographical error.

who knew this part of Egypt well, identifies it with the *Scenas Mandras* of the "Itinerary" in the "Nomos Aphroditopolitis." The "Itinerary" places it twelve (Roman) miles* from Babylon; and the "Notitia" makes it a military post. Under the Emperor Leo I it was a Bishop's see, and the Coptic name "Alban," seems to have originated the modern "Helwán." The historian El Makrizi, cites Halwán, son of Babylon, son of Amru; son of the Amír el-Kays, king of Egypt, son of Sabá, son of Záshúb, son of Jahúb, son of Kahtán (Joktan?) The town was either rebuilt or restored by 'Abd el-'Azíz ibn Merwán, who, flying from a pest which lay waste Fustát, or Old Cairo, in A.H. 70 (= A.D. 690) here established his residence, and adorned it with gardens, conducting to it the mineral waters collected in the desert.

The ledge or river-bank containing the sources, measures about $4\frac{1}{2}$ kilometres from north to south, by a little over 3 in breadth. It is divided into two almost equal parts by the Wady el-Nakhil ("Valley of the Date-Groves"), whilst the northern and the southern limits are the Wady Karáfish, and the larger Wadi el-Rashíd. All three drain (to the Nile) the rare rains which water the barren hills of Torah, the Arabian chain, a continuation of the Mukattam range near Cairo, rising from 200 to 300 metres above the plain. They form the right or eastern bank of the river-valley as it lay in geologic ages. The formation is the tertiary calcaire. The lowest strata are cretaceous, affording here and at the Ma'sarah station good Balát ("slabs") for flooring rooms; above stretch the Nummulites, and the surface is hard and vitreous limestone very rich in silicic acid. The softer parts which underlie these couches make good ashlar and lime; and they are separated by horizontal stratifications of argile, of marl, and of crystallised gypsum. Here and there crystals of sulphur are found; and, upon the plain, yellow powder is thrown up by the ants. It has been proposed to exploit the imperfectly crystallised gypsum, the plaster of Paris found upon the surface of the mountains and the plateaux. Crystals of carbonate of lime, of barytes, and of strontium also occur; and scattered over the surface appear rolled and polished fragments of petrified wood, the same formation as the two "Forests," one near Cairo, and the other lying to the west of the Nile, about 1 hour 30 minutes from the Pyramids of Ghizeh (Jizah).

In a lateral valley of the Southern Wady El-Rashíd is a remnant of the Pharaohnic age, supposed to be a princely tomb. A pyramidal hillock is hollowed by a shaft, 21 metres deep;

* Roman $1\frac{1}{4}$ = 1' (geographical mile or knot) = 10 stadia.

and from the bottom a gallery rises, with an oblique angle northwards. One part of the hillock also shows many débris of dark granite, probably the remains of a sarcophagus, broken by means of fire and water. About 15 minutes' walk east of the *Établissement* is a place called "Bellahim" (Reil), an old quarry still worked; and here the people pretend that a "Frank" carried off a large hoard.

I first visited Halwán (March 14, 1877) in company with Mr. W. E. Hayns, of the Numismatic Society, to whom the site has long been familiar. The shelving plain, which commands a fine view of the stepped Pyramid of Sakkára, and of Dáshúr with its double angle of pitch, has two chief centres of worked silex, suggesting a prehistoric manufacture. One lies around the last well, north of the Helwán Hotel, on the line of the Wady Karáfish; here Messieurs Hayns and Browne, F.G.S., guided by Dr. Reil, picked up a flint-saw and many flakes. The other is about two miles south of the *Établissement*, upon the slope of a basin drained by the large and open Wady el-Nakhil, noted by its pair of palm-clumps. The watercourse has at times rolled a furious flood to the Nile, as we see by the stiffly standing cliffs of a stone harder than the surrounding grits; the latter, connected by silicic acid and oxide of iron, is still in process of formation. Here fragments are again abundant; and the shapes at once distinguish them from the dark blue limestones scattered around. They are found upon the surface, and I am assured three feet, and even more, below. This is a crucial point. A single worked flint, found a yard underground, in soil which has not been stirred, and which shows no signs of recent deposit, will do more than the writings of a hundred men to establish the existence of a veritable Stone-age in the Valley of the Nile. Mr. Hayns bears this point in mind, and devotes his attention to it. As yet, however, the results are insufficient.*

Mr. Lombard, the present proprietor of the Halwán Hotel, gave me some fine specimens of saws and tools and flints; but—travellers, beware!—they are now "knapped" and sold for "Antikás" by the Egyptians whom perverse rangers *will* call "Arabs." Similarly, Dr. Schliemann's workmen readily learned

* Lately Mr. Hayns found at the Bir El-Hadid, the last well north of Halwán and north-west of the *Établissement*, a scraper near a piece of bone. The depth was only three inches; and as the ground is a soft and sandy rock the flint might have been washed down from the surface by rain. The boy who accompanied Dr. Moore assured Mr. Hayns that the bones (of animals?) are found below, and the flints on the surface. Mr. Lombard declared that he found bones and flints attached together. Mr. Browne, considering the association of these Halwán flints with horses' teeth, appears inclined to "assign them to a period which is hardly prehistoric, so far as Egypt is concerned."

to forge marks in terra-cottas ("Troy," p. 194). The Arabian chain about Torah, ancient Troja, and the Petrified Forest, south of Cairo, have still to be examined.

On April 29, 1878, I proceeded, also under the guidance of Mr. Hayns, to inspect the sites of various finds to the west of the Nile. Over night we had sent on three donkeys to carry ourselves and provender. A cool and beautiful morning, the local May-day (called *Shamm el-Nasim*, or the Smelling of the Zephyr) saw us *en route* to the great Pyramid, reached in the usual hour and a quarter. The road is of course unfinished, and the last few hundred yards of the eight mile drive became very trying to animals. At 7.45 A.M. we mounted ass—an operation never pleasant to me; one feels as if it would only be humanity to carry the patient, willing little beast oneself. The landmark of this, our northern ride, was a bluff white scarp with a flight-of-steps formation, buttressing the left bank of the Nile, and crowned by a cap whiter still.

Donkey-driving, an abomination to the ancient Egyptians, is one of the industries which flourishes most in the Great Valley; and its abuse calls loudly for the establishment of a Humane Society—a *Société de Bienfaisance*—with branches in every large town. The cruel goad, a nail set in a stick, has disappeared from Alexandria; but there is still much to do. Let me strongly recommend my countrymen never to mount an animal without seeing that it is in good condition; and, when a wounded or worn out ass is brought, to pay only half-price. The cries of the donkey-boys appear strangely European; yet they may be as old as the hills. Some are confined to the Felláh; others are used by the "Sons of the City;" such as "ó á;" "há-á;" "Tchí," more labial than our palatal "tchk," and "Jí" sounding exactly as in "Gee-up."

Our route lay along and below the modern left or west bank of the Nile, the continuation of the hillocks that bear the Pyramids. They are the normal dark mounds naturally metallised with hepatic silex, and streaked with sheep-trails and camel-tracks. The vegetation was familiar to me after Midian, the borage-like Kahlá (*Echium*) our "purple bugloss;" the yellow thistle; the brown Kaff Maryam (*Anastatica*) "palm of (the Virgin) Mary," much used by the superstitious; and the coarse Halfá-grass (*Cynosurus durus*), well browsed down. In 1876 the inundation covered this part of the valley; but the flood was unusually high; and, as a rule, Typhon, the Desert, in the shape of sand-drift from the west, gains upon the palm orchards and the rich fields of black soil which shelter and surround the villages of Kerdásah and Abú Rawásh.

After one hour we attacked the long slope projecting from

west eastward, and abutting below upon a large cemetery, with a scatter of trees about the one white-washed cupola, and the two time-darkened domes. Here are the ruins thus alluded to by Howard Vyse (*Ibid.* III, 9). "Upon a plain now covered with sand, between this place and the village of Kerdassy (Kerdásah), the site of a considerable town may be traced. The name of it has perished together with its edifices; but from the apparent antiquity of the Pyramid in question (Abú Rawásh), it was probably Cochoma, mentioned by Africanus as having existed under the fourth king of Manetho's first dynasty, Venephes (Enephes or Venephres), son of Cencenes, for that monarch is said to have erected a pyramid near the town of Cochone (Cochoma or Choe)."^{*}

The body of the well-marked watercourse is sprinkled over with blocks, often of large size. They are mostly the snow-white, chalky, marly limestone of the hills; in fact, the common rock of the Nile-Valley, and the fawn-coloured *Calcaires* so frequent in the desert. There are also scatters of petrified wood, fragments from the western *Jebel El-Khashab* ("Petrified Forest"). The head is a gathering of many little gorges and watercourses, and the whole is known as *Wady Abú Rawásh*. The name is that of the *Shaykh*, whose whitewashed tomb, set off by the leafy *Jammayz* (Sycamore), and the feathery date-tree, gives an odour of sanctity to the northernmost of the two villages. Here we find other objects of interest. Howard Vyse (*loc. cit.*) says: "Upon a projecting knoll, on the eastern side of the mountain, and near the village of *Abú Roash* (Rawásh), are also the remains of a building of considerable magnitude and solidity. It is composed of crude bricks, made of Nile earth, without any intermixture of straw. Small sepulchral grottoes, at the bottoms of inclined passages, have been roughly hewn in the side of the mountain; they contain sarcophagi, which are without any ornament or inscription.

After a charming ride of 1 hour and 30 minutes (= 5 miles), reduced on return to 1 hour and 15 minutes, we dismounted near a quarry still worked. Here a cave, probably an old tomb, once double and now single, shows the growth of modern tradition. In 1875 Mr. Hayns and two other English travellers were treated to a shower of stones by a mad *Darwaysh*, a gigantic naked negro. One of the Franks entered his lair and was received with a blow of the *Nabút* (quarterstaff); whereupon they smoked out, *à la Péliſſier*, the ruffian, who ran howling over the hills and far away. But this *finale* is far too tame

* "Cho" would mean a hill. We are now in the *Nomos Latopolitis*.

and prosaic for the imaginative mind of "Kem."* The Bedawi boy, Ibrahim Sammalusi, hired for a franc at the Great Pyramid to carry a "gugglet" of water, called the hill Maghārat El-'Abd (Cave of the Slave, *i.e.* negro); and declared that when the "Faranj," armed with guns and pistols, stormed the place, its tenant, the Darwaysh, had (preternaturally) disappeared and was never seen again.

We rounded the stiff white scarp by ascending the block of dark limestone to the left; and presently stood some 600 feet above the Nile, at the base of the northernmost item of the Memphis Cemetery, known as Abú Rawásh. It is a fine study of a pyramid in decay, with only the lower courses still standing. Those who would realise and feel the vastness of these buildings, even the smaller or second-class, and who would understand the disposition of the royal chambers, are advised not to think of "Lincoln's-Inn-Fields," but to spend an hour wandering over the truncated summit of the Abú Rawásh ruins. I shall extract the description of Howard Vyse (p. 8), with a few notes of my own to illustrate its present state.

"This pyramid is situated about five miles to the north-westward of those at Gizeh.† The base (320 feet square) alone remains. The defective places have been made good with masonry, but the bulk of it is formed of the mountain (composed of hard chalk), which has been reduced to a level around it. No part of the external casing is to be found;‡ indeed, the edifice was not probably ever completed, or even raised to a considerable height, for scarcely any materials, and very little rubbish, are to be seen, although the situation is difficult of access.

"An inclined entrance-passage, and an apartment lying east and west, have been constructed in an excavation, and have been lined with fine calcareous stone from the Tourah (Torah) quarries.§

"The passage (about 150 feet in length)|| is in the centre of the northern front, and descends at an angle of 22° 35'. The dimensions of the apartment are about 40 feet by 15; and above it smaller chambers appear to have been constructed, similar to those over the king's chamber in the great Pyramid of Gizeh. Hieroglyphics have been inscribed with red ochre on some of

* Kem or Khem (black-land whence "Ham" son of Noah) in hieroglyphic; Kemi or Khemi in demotic.

† N. West (*mag.*) of "Cheops."

‡ That is, found *in situ*.

§ The nummulite of which Cheops and Cephren were made.

|| The length of the passage facing north is apparently understated. The Central Chamber is shaped like an inverted T (I), the perpendicular being the ramp of approach and the horizontal the receptacle-chamber of the Sarcophagus.

the blocks at the western end, but they cannot be distinctly made out.

"Upon the adjacent ground are heaps of broken granite,* which may possibly be the chippings of the rocks, originally intended for an external casing, but afterwards broken up, and carried away for other purposes. The fragments crumble to pieces on being handled, and are much decomposed and covered with moss, either from great antiquity or from an exposure, not only to the corroding air of the Desert,† but also to the moist winds of the Delta.

"Some other foundations are upon the same height, which has been already described to be composed of chalk, and which appears to have been *worked in very early times (as at present) for the sake of the flints embedded in it.*‡ The levelled space around the Pyramid is about 510 feet above the plain. The eastern and southern sides of the mountain are nearly perpendicular, and beneath it to the southward are ancient remains.§ The northern side has been sloped away, and an inclined causeway has been constructed from the plain below. It is 4,950 feet in length, 30 feet in breadth, and in some places nearly 40 feet high. About half of it is constructed of masonry.

"A valley to the northward extends to the Natron Lakes, and is the usual road of the western pilgrims from the Barbary Coast. Mummy pits and tombs were found in this valley,|| but they did not contain any inscriptions; the inhabitants of the neighbouring village, however, were said to have taken from them a variety of small articles, similar to those in the tomb of Gizeh, and mummy cases inscribed with hieroglyphics. At the edge of the hills, on the northern side of the valley, are traces of an ancient square building. It is called by the Arabs El Deir (*the Convent*),¶ a name, however, which is often indiscriminately applied by them to ancient ruins."

The learned author does not especially allude to the regular line of pits which surround the principal structure. At first sight, they look as if they had been sunk to strike same sub-

* In my diary I wrote "a strew of syenitic gravel, which grows to stones, blocks and slabs as you approach the ruins, shows where the costly coating has been destroyed by the hand of man—what men no one can say. Probably, as in the pyramids of Cheops and Cephren, the upper capping was of fine marmorine calcaire, while, for the lower revetment, Ethiopian or Lybian stone (granite) and dark Thebaic stone (Syenite) were used."

† I should rather say the Desert-winds laden with sand and dust.

‡ The italics are mine.

§ Such as the quarries and the "Slave's Cave."

|| The Chalky Valley, or rather gully, draining to the salt white plain northwards, shows the mortuary caves; similar features, as all know, appear under the Grand Incline of Cheops.

¶ El-Dayr, the Monastery.

terranean entrance or chamber. But, as they are double to the east or facing the valley, they suggest a multitude of subsidiary monuments; the truncated pyramids which usually surround the main structure. Nor is any mention made of the large oblong tomb crowning a detached rise to the left or west.

The notice of the flints is interesting. In the south-south-west of the Pyramid, Mr. Hayns, in 1876, came upon a hammer of basalt; small blocks of this stone, dark green and light green, hard, heavy, compact and sometimes sparkling, are scattered around the main ruins. Still later, Mr. Greville Chester picked up, above and east of the T-shaped chamber, a small, smoothed or polished celt, measuring about $1\frac{1}{2}$ inches across and broken at the base. Mr. Roland L. N. Michell, of Cairo, showed us the fragment of a greenstone hatchet taken from inside the T; and told me that he had rejected another as useless. The date of these finds reminds us of the Acropolis of Athens, where a multitude of small silex implements, knives and saws, have been found, suggesting that they were used till a late period. This time our search was rewarded by the discovery of what appears by its groove to be a rude hatchet; and of two *percuteurs* (hammers) both much broken and injured. The upper surface is convex, to fit the hollow of the hand; the lower was originally flat, but hard work has made it slightly concave. For these rudest of rude articles we could divine no other use but that of acting hammer to the tools used in breaking up the granites and syenites.

We then returned to the Pyramids which, on this auspicious end of April, were crowded with visitors. May-day is ever a universal *fête*, and on it happened to fall the Greek Easter, when no Hellene in the land keeps sober, or, despite the most stringent police orders, can refrain from letting off squibs and crackers. After resting under the shadow of the "Forty Centuries," we were tempted by the cloudy morning and the cool weather to a second ride southwards. When our beasts had been watered and fed with barsim (*Trifolium Alexandrinum*), we did not think it inhuman to add 12 miles to the 10 already covered by the good little donkeys. We set off at 1.30 P.M., descending alongside of the Sphinx which, seen in profile from above, becomes truly ludicrous; a head terminating a straight-back rock like a log of wood, and a snub-nosed face, of which the flat-featured Guinea negro might be proud.

Passing the buttress of ruined masonry in the valley that forms the terminal incline of Cephren, we struck towards the three pyramids of Abú Sir. The word is a corruption of Busiris and the latter may be Pi-Osiris, city of Osiris, as Bubastis was Pl-Bast, city of Isis, the tabby cat. This suburb of Memphis,

distant four miles, has been variously placed at the little Fellah villages, *Kumm El-hamrá* (Red heap) and *Kumm El-Aswad* (Black heap) near the Great Pyramids. The inhabitants in Herodotus's day lived by swarming up the "Harams," as do the monkey-like Bedawin of the nineteenth century; but the Fellah is not afraid of long walks ending in "Bakhshish." The evident derivation of *Abú Sir** from "Busiris," moreover, suggests that the latter was not so near the Great Pyramids as certain modern authorities would make it.

The southern road was a copy of the northern. Crossing the hills that form the left valley bank, we found ourselves in ankle-deep and distressing sand; while after 3 P.M. the Egyptian sun did not fail to make himself felt. This ugly line has the advantage of showing the *Zahr El-Sant* ("dorsum of the Mimosa"), a range of trees perpendicular to the river, and supposed to denote the northern dyke or causeway which crossed the *Nahr Yúsuf*; and a little beyond it a broad low wall, of brick and fine mortar, pretends to be a remnant of the southern feature. Joseph's Stream, the old westernmost channel of the Nile, has long ceased to flow, but it has left a deep depression, filled by every flood and not exhausted till the height of the dry season. There is a plan in the air for reconverting *El-Jezírah* into an island and of defending the *Bolak* suburb, upon which the stream impinges, by clearing out the hollow near the left bank crossed by the smaller or *Gizeh* bridge. The movement of the *Nahr Yúsuf*, and the disappearance of the old ford at Memphis,† should counsel prudence and the use of "groins."

From this point our *objectif* began to define itself, a large glittering white mound, capped by a uniform heap of huge stones. After riding 3 hours (= 6 miles), diminished on return to 1 hour 40 minutes, we dismounted at the *Záwiyat El-Uryáñ*,

* *Abú* (father of) is made to enter even into European words, as Hippodrome, which becomes *Abú Durum*. Colonel Howard Vyse believes that there were two places of that name (Busiris) near the Pyramids (III, 6).

† The following notes on this ford, which probably depended upon a very low Nile, were supplied to me by Mr. W. E. Hayns, who quotes Sharp's "Hist. of Egypt," Chap. vii, §§ 6-7; and "Diodorus Siculus," Lib. xviii, 33:—

"6. Perdiccas, on the death of Cleomenes," &c. "now led the Macedonian army into Egypt," &c. "At Pelusium he was met by Ptolemy, who had strengthened all his cities, and had left garrisons in them; and when he laid siege to a small fortress near Pelusium, Ptolemy forced him to withdraw his troops, and to retire to his camp. At night, however, he left his trenches without any noise and marched hastily towards Memphis, leaving the garrisoned town in his rear."

"7. In this bold, and as it would seem, rash step, Perdiccas was badly supported by his generals," &c. "Perdiccas attempted to cross the Nile at the deep fords below Memphis. Part of his army passed the first ford, though the water was up to the men's breasts. But they could not pass the second ford in the face of Ptolemy's army," &c.

the Zowyet el-Arrian of Howard Vyse (III, 10). According to him this ruined Pyramid, which belongs to the Busiris group, is also “called by the Arabs El Medowareh” (*El-Mudawwarah*, the circular); and is “situated on an eminence near a sheikh’s tomb, about three-quarters of a mile to the westward of the village, from which it takes its name.” The Asiatic term means the “Oratory of the Naked (Shaykh);” the Adamical costume being a favourite with certain holy men of the Darwaysh. The present base measures about 300 feet, and it rises 61 feet above the rock; the latter has been scarped away before the northern front, so as to form on the eastward the usual inclined approach from the plain.

We read (*Ibid.*): “It is mentioned in the ‘Description d’Égypte’ (Vol. V, p. 12), in connection with two other buildings, the remains of which, after some trouble, were at length discovered; the one about half a mile, and the other about a mile to the northward of the pyramid in question, but they were so completely dilapidated that their original construction could not be made out; indeed, of the most perfect there were only to be seen a few stones, composing a parallelogram, twice as long as it was broad. The materials of the Pyramid of Zowyet el-Arrian have been quarried from the adjoining hills,* and consist of hard limestone, in which are many fossil shells. The rocks have not been squared nor laid in regular course, but form a sort of rubble work, in which clayey loam mixed with sand has been used instead of mortar. Great part of the building has been removed for the use of the neighbouring villages; and it is only where the sand has been taken away in search of materials, particularly at the north-western angle, that the masonry is visible.† The pyramidal form is entirely destroyed, and the general appearance of the ruin is that of a round hill.‡ No remains of a casing, or of limestone from the Mokattam, were discovered.”

In a previous publication§ I erroneously made Prof. Lewis pick up, some four years ago at Halwán, a fine specimen of a saw about $2\frac{1}{2}$ inches long. The article in question was found upon the southern slope of the white mound which represents

* Meaning those west of the Nile. Thus it was never a *Troici lapidis mons*; the yield of the quarries where Menelaus, and his Trojan captives built the *Vicus Trojanus* (*Torah*).

† It is now reduced to a small heap of large stones; and presently it will altogether disappear.

‡ I should call it a mound.

§ See “Note on the Flints of Helwán,” appended to Chapter ii of “The Gold Mines of Midian.” Also the same mistake is made in “Flint Flakes from Egypt,” “Journ. Anthropol. Institute,” Feb. ’78. In the latter paper the scraper flake is figured.

the Pyramid of Ríghah (not Reegab). On the northern counter-slope, Mr. Hayns subsequently discovered a flake, which appears to be a scraper. According to Howard Vyse (*Ibid.* p. 10), "the Pyramid of Reegah (Ríghah) is situated on a hill, near the deserted village of Reegah, about three-quarters of a mile north-west of the Pyramids of Abouseir (Abú Sir); it is called by the 'Arabs' Harem el Abou-Goorob,"* and is composed of masonry superior to that of the Pyramids of Abouseir. There appears to have been a temple before the eastern front, and a causeway communicating therefrom to another building on the plain.

"The Pyramid had been carried up in two inclines, like the southern Pyramid of Dashoor. The casing of the lower part was of granite, and had an angle of $75^{\circ} 20'$; that of the upper part, composed of calcareous stone from the Mokattam, had an angle of about 52° , the base was 123 feet, 4 inches square.

"Mr. Perring excavated in the centre of the northern front, and found amongst the rubbish fragments of stone which were rudely sculptured and coloured, and, in some instances, were marked with golden stars on a dark-blue ground, as if they had belonged to the ceiling of an apartment; he also met with some coarse earthenware pots, and a mass of brickwork erected close to the Pyramid, upon the broken casing-stones; fragments of which, composed of granite, were found near the north-eastern angle. As Mr. Perring did not discover an entrance to the northern side, he extended his researches, but without effect, to the eastward, where brickwork had been also erected over the broken casing, and where more coarse earthenware, consisting of pots and lamps of this shape (*a*), were found, and likewise some round pieces of black basalt from 3 to 7 inches in diameter.† Mr. Perring doubted the antiquity of the lamps. Several sculptured slabs were also discovered, upon one of which was the cartouche (*b*), represented in the plate."

Leaving the ruined Záwiyah, which stands well out from its background, the caverned cliffs of Torah to the east of Father Nile, we walked a few paces to the south-west, and ascended the eastern flank of the Ríghah mound. Here the digger had been at work opening hollows lined with dark adobe: these are supposed to be tombs; but the large grinding-stone before mentioned, which came to hand in the interior, rather suggests a village. The surface was everywhere strewed with pottery, hepatic silex and, curious to relate, with white quartz, showing an artificial fracture by "spalling." The people here ignore the

* I was told "Abú Turáb," the Father of Earth.

† This description would perfectly apply to the hammers which we picked up at Abú Rawásh.

classical Arabic word *Marú*, and simply call the rock *Hajar Abyaz* (white stone); water-rolled pebbles of the same material are to be seen all along the Libyan side of the Nile. Both must come from the Western Desert, a track utterly unknown to Europeans beyond the Western Jebel el-Khashab.* I promise myself, at the first opportunity, from ten days to a fortnight of tent-life in the Libyan wilds, and a careful examination of their peculiarities.

The summit of Righah commands a fine view of the Nile Valley stretching in front. Behind us Anubis, the jackal standing to gaze at us from his vantage-ground, the Desert Valley, was the fittest emblem of the place. After picking up the fragments of three silex flakes and a natural splinter that much resembles art, we returned by the eastern road. It runs over the black earth of the Nile which gave a name to *Kem* (Egypt); and here, at the depth of a foot and a few inches, the ant throws up tiny cones of the finest yellow sand. The scene was notably Egyptian. Large villages and scattered houses; palm-trees and cultivated fields; tanks and draw-wells, dykes and watercourses; horses and asses, camels and buffaloes, sheep and goats; men, women, and children in demi-toilets, quarter toilets, and no toilets at all, formed the items of the pleasant, prosperous, and peculiar picture. I was surprised by the plenty which appears everywhere, but it is only fair to own that much of this land belongs to the Pashas. And, as sunset approached, Cheops doubled himself by projecting, like a giant gnomon, his triangular shadow far over the subject plain.

We regained the carriage at 6 P.M., and after 36 miles of ride and drive, not including various walks, we returned to Cairo with our trophies: three hammers, three flakes, and three skulls from the Pyramid-Tombs. The day had been delightfully spent—a marvellous contrast with the dull monotony of eternal “Shepheards.”

On Friday, May 3, 1878, I set out with a small party to hunt flint flakes, on and about the Jebel el-Ahmar (the Red Hill); that low and jagged block of dark ruddy hue, igneous, where all the Arabian mountain is sedimentary, which forms so remarkable a feature among the pale tertiaries of the Cairine basin and desert. Half-an-hour's walk led to the venerable Bab el-Nasr, or Suez Gate, outside of which Háji Ibrahim bin Abdillah, the amiable Burckhardt, lies buried, under a tomb restored by the piety of Mr. Consul Rogers. Twenty minutes on donkey-back,

* At the Great Pyramids we were shown balls of sulphur pyrites, the size of musket-bullets, from the Oasis of Siwah, distant 15 marches. At least, so said Sagr (Sakr) the Bedawi, who collects “curios” from his wilder brethren and sells them to visitors.

over the dusty road and the sandy and gravelly surface, where the stone has been removed, placed us at the Wady, trending from south-east to north-west, and defining the occidental end of the ridge. Another quarter of an hour saw us upon its summit.

The Jebel el-Ahmar is a succession of natural pits and artificial quarries. The former, which break the surface into ridges, are the round and oblong funnels, so common throughout the Anti-Libanus, and the Carso of Trieste. The origin of these *Tallajat* (Arab.) or *busi* as the Istrians call them, the *Dollina* of the Slavs, is still doubtful. Some believe them to be blow holes produced by the escape of submarine gases; others attribute them to the action of water sinking through the cavities of the soil; while others, again, have suspected the coral insect. I looked in vain for the "core of melted quartz," which the *vox populi* of Egyptian travellers clothes with "ferruginous sandstone showing all kinds of colours." Here, numerous quarries have been worked for ages, and have caused the whole block to be seamed with paths, giving a fine opportunity of studying its lower horizons. The deepest show at the base, and extending for some way up the walls, a favourite material for the round and square millstones which cumber the ground. It is an exceedingly hard and crystalline sandstone of greyish-white colour; here it bears the old ripple-mark; there it is marked by wavy lines of iron oxide, or natural bead-work, water-rolled pebbles deep set in the rock; and many of the blocks are seamed with refractory quartz veins, trending north-west, south-east. On a higher horizon it passes into a distinct amygdaloid, the puddings often adhering to the crystalline masses. Here, too, are pieces of fine yellow and sandy matter, which stains the skin; it is collected for sale in barrels. Higher still occur thick veins of ochraceous formation, yellow and red, whilst the surface is composed of sandstones, also apparently heat-altered to the consistency of porphyries. These grits show the liveliest colours, the commonest being yellow, and much of it blackened as if by fire. Next to the yellow come the reds—crimson, vermillion, scarlet, bullocks' blood, and *crête de coq en colère*—and there are mauves and purples, with a beautiful stone marked red and white. An up-standing block to the south-west, cut into steps for millstones, bears upon the white sandstone base an upper stratum of brown grit, full of pebbles, loosely deposited, with many cavities, and yet the whole is hardened by igneous action.

On the Red Hills, as on the plain below, appear scatters of water-rolled quartz and a little silex, but no flint flakes were picked up. Unfortunately we came back by the wrong road, as we afterwards learnt from Dr. Grant, of the Sanitarium, Cairo,

Then issuing from the range, we bent to the right, instead of to the left ; between the old railway of the quarries, whose metals have been torn up, and the water-tower that supplies the Cairene Citadel, at the north-western part of the Red Hills, some fine specimens of worked silex have been picked up, including a good spear-head, now in the possession of Mr. Roland S. N. Michell.

We rode back in 45 minutes, by the northern road, through the Abbásiyah. Here a carriage can approach within a five-minutes' walk of the base, by driving up to the roofless Sakiyah, or "draw-well," which was allowed to fall to ruin when the tall water-tower had provided for the wants of the Citadel.

PART III.

The Bones.

So much for the Stones. I must here say a few words touching the Bones. The Palmyrene skulls, which have been honoured by the inspection of my highly distinguished friend, the venerable Professor Owen, were brought to England by the Rev. William Wright, long a missionary at Damascus. The little collection of Egyptian remains—three complete skulls with jawbones and sundry fragments—dates from November 11th, 1877, when I visited the Pyramids in company with Mr. Hayns and Colonel (now General) William Paget. Our attention was drawn to the "Tomb of Numbers," so called because inscribed with Egyptian numerals, and to other mortuary caverns hollowed in the limestone—a cliff forming the platform face where it projects farthest eastward. All are to the south of the great incline, whose head still shows a causeway running towards the Nile some 20 feet in breadth. Herodotus pronounced it to be a "work scarcely less wonderful than the Pyramid itself."

A subsequent visit on April 29th, 1878, produced three other skulls, one evidently mummified ; they were procured for me by Shaykh 'Ali Gabri, of El-Kafr. As you approach the Great Pyramids by the bad new road, you leave on the right the small modern villages, probably ancient and classical sites, called the *Kumm El-Ahmar* and *Kumm El-Aswad*, the "Red Heap," and the "Black Heap," whose colours are a dark grey-brown. At the eastern base of "Cheops" lies *El-Kafr*, "the hamlet," a dependency of the *Kumm El-Aswad*, occupied by the settled Bedawin—an Irish bull, but a true description—who haul the Frank up the Pyramid. They call themselves *Urbán Nejmah*, and hail from El-Gharb or West Africa, a legend which explains

their pale skins and stalwart forms, their rough voices, and robes of white and black wool. They estimate that their five villages contain some 4,000 (400 ?) men, of whom many have now become Fellahin. Time and strict government have abated much of their ancient fierceness; the stranger has now nothing to fear save the begging, the importunity, and the dunning for "Bakhshish," bred by an ultra-Jewish greed of gain. Ali Gabri speaks good English, and is always ready to do justice between strangers and his tribe.

The skulls from Midian have been noticed in my second volume. They all come from the country below El-Muwaylah, which I have ventured to name South Midian. The first picked up was at Sharm Dumayghah, 30 miles north of El-Wijh; this large specimen was found upon the shore, and evidently belonged to some adjoining cemetery of the Bedawin. Three skulls and thirteen fragments were taken from the Moslem burial-ground at El-Badá, the Badais of Ptolemy. The remaining three, of which one belonged to a woman or a child, were yielded by the graves lying behind the classical temple or shrine on the southern bank of the Wady El-Hamz, the boundary between Egypt and the Hejaz. The poor remains of a beautiful little building, known as the Kasr Gurayyim Sa'id—the Palace of S'aíd the Brave—are described in my last volumes, "The Land of Midian Revisited."

My friend, Dr. C. Carter Blake, has been kind enough to examine all these remains, and the notes of so experienced a craniologist will, doubtless, prove highly interesting to you.

NOTES on SKULLS brought by CAPTAIN R. F. BURTON from the
EAST. By C. CARTER BLAKE, Doct. Sci. (late) HON.
FELLOW Anthropol. Institute, Lecturer on Comparative
Anatomy and Zoology, Westminster Hospital School of
Medicine.

- S. Palmyra; child's calvarium.
- V. Palmyra; skull in cerebrum, of young girl, with large parietal bosses.
- I. "Pyramid, April 29th;" child; only frontal and right parietal bone.
- O. "Pyramid, April 29th;" resinous heavy calvarium.
- P. Pyramid skull, Nov. 11th, 1877; low type of skull; small superciliaries; prominent ossa nasi. Coronal suture closed early. Lambdoid suture complex; wormian bone in left alisphenoid-parietal suture.

- Q. Pyramid skull, Nov. 11th, 1877; same type as above, but with fairer forehead.
- N. Pyramid; young. Acuminate canines and very small teeth; small mastoids, prominent ossa nasi. Large superoccipital, with well marked superior curved line.
- R. Uncertain locality; lower jaw, teeth worn. Large depressions indicating muscular strength, on external angle of jaw. Does not belong to Q.
- L. Sakkarah; female (?) child: about 12 years; high forehead, small mastoids.
- M. Sakkara, east side 1878; oval skull, a symmetrical, complex lambdoid, small superciliaries, prominent ossa nasi united in middle, alisphenoido parietal suture narrow; deep grooves on frontal.
- T. "Shakkara Pyramid, Nov. 11th, 1877;" fractured skull with mandible. Right parietal and temporal with frontal and face bones alone definable.
- G. Dumayghah, *alias* Damghah (Pilgrimage), *alias* Demerah. Large male skull, broad alisphenoid suture, deep post-mastoid groove, palate long and deep, though much broken; only five teeth *in situ*, which are much worn, nasal bones curved and prominent, slight rainure sagittale; lambdoid suture, which has been complex, united at upper corner; posterior aspect of the skull subpyramidal, superciliaries large.
- U. (In dish) El Badá (*Bādās*); 17 fragments of adult skull.
- J. Nabathæan from temple near Wady Hamz. (Figured on plate.)

Adult skull; Receding forehead, prominent proboscis, very prognathic. Wormian bone in sagittal, small superciliaries, supraoccipital bone very prominent, contains much recent matter, alisphenoido-parietal suture broad, foramen magnum large, palate very flat, teeth worn, ossa nasi very prominent, m 1 left in place, posterior teeth shed, right m 1 and m 2 in place (m 3 shed).

The characters of this skull are, when compared with those from other localities in the East, entirely *sui generis* ("Journ. Anthropol. Institute," Vol. I, 312). From the Palmyrene skulls hitherto described it differs by reason of the extremely flat palate. From all skulls of the Arabic, Shemitic, Turkish, Tartar, Greco-Roman races it affords marks of distinction in its greater proportionate length; and from Egyptian or Negroid skulls the form of the frontal bone, the breadth of the alisphenoido-parietal suture, and the apparent small size of the alveoli which have contained the third molars are characters which preclude its classification with any cranial forms which have been termed Hamitic. Yet



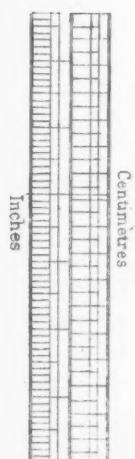
Fig. 1.



Fig. 3.



Fig. 2.



Centimetres

Inches



Fig. 4.

Scale, $\frac{1}{2}$

NABATHÆAN SKULL FROM WADY HAMZ.

the prognathous character, accompanied by the remarkable development of the upper part of the superoccipital bone lead us to infer that the position of the individual to which this skull belonged was inferior to that which cranial characters of Chaldaean or Assyrian races produced. If this skull is that of a Nabathæan (and I am of course unable to say anything respecting its age) I have no hesitation in affirming that it presents features which, if exhibited in other adult individuals, indicate an exceptional race, and one which I have not previously observed from these localities.

H. From temple near Wady Hamz; child's calvarium, oval, large parietal bosses, broad alisphenoid, meatus auditorius far behind junction of coronal and sagittal sutures.

K. Nabathæan from temple near Wady Hamz; about 12 years old, m 3 in alveolus, alisphenoido-parietal suture narrow, spheno-occipital suture open.

The theory which was originally offered by M. de Quatrefages, that some of the Palmyrene skulls ("Journ. Anthropol. Institute," Vol. I, 319) may belong to the Chaldaean stock, which is "in part characterised by the absence of the occipital *lame* and crests, and by the continuity of the curve above and below the latter," indicates his idea that the race in which the occipital *lame* is greater than ordinary is further from the normal type, and in a different direction than a race in which the occipital *squama* was less than common. His ideal Chaldaean has therefore nothing to do with the present assumedly "Nabathæan" skull.

NOTES on a SKULL termed "NABATHÆAN."

By G. BUSK, Esq., F.R.S., V.P.A.S.

THIS skull, which is that of an aged man and apparently quite recent, as it has portions of skin still adhering, presents no very striking characteristics, unless it be the greater thickness and forward prominence of the malar bone and outer border of the orbit, which might be taken to indicate a Mongol or Tartar affinity. But to this is opposed the decided dolichocephalism and the want of any obliquity in the orbits, and the prominence or aquiline character of the nasals, &c. On the whole, I am unable to assign to it any distinct racial characters.*

* It appears, however, closely to resemble in most respects the dolichocephalic skulls from Palmyra described by Dr. Carter Blake ("Journal Anthropological Institute," Vol. I, p. 312, 1871), and which are regarded by Messrs. Marichard and Pruner Beg as "*Semite Phénicien*." The modern Syrian skulls would seem, from

Its dimensions, &c., are given in the subjoined table. The more essential particulars of its conformation may be thus briefly stated.

1. NORMA LATERALIS. (Fig. 1.)

The most striking characters afforded by this view are: 1, the lowness and reclinature of the frontal region, and the very considerable production of the occiput, which commences just above the lambdoidal suture. The appearance almost suggests that the skull had been constricted by a bandage. The subinial surface of the occipital ascends but very slightly.

2. NORMA OCCIPITALIS. (Fig. 2.)

In this view the outline above is fastigiate, on the sides somewhat rounded and lofty. The occipital spine wholly undeveloped, and the occipital bone slightly pinched in laterally. The foramen magnum is horizontal.

3. NORMA FACIALIS. (Fig. 3.)

Orbits rectangular; malar region thick and prominent; nasals prominent not keeled, with an aquiline contour, orifice pyriform; maxillary spine very prominent; zygomata straight and long.

4. NORMA VERTICALIS.

Outline regularly oval, the widest part corresponding to the middle of the length of the parietals.

The sutures are all open. The bones generally thick and the entire skull is heavy.

TABLE OF DIMENSIONS, PROPORTIONS, &c.

1	Length	7·4	8	Zygomatic width ..	4·6
2	Breadth	5·3	9	Frontal radius ..	4·5
3	Height	5·5	10	Vertical ..	4·6
4	Least frontal width	3·8	11	Parietal ..	4·8
5	Greatest ditto	4·5	12	Occipital ..	4·3
6	Parietal width ..	5·3	13	Maxillary ..	4·1
7	Occipital	4·5	14	Fronto nasal ..	3·8
			15	Circumference ..	20·3

what is said by Dr. Carter Blake (*loc. cit.* p. 316), to be extremely brachycephalic. Whether this brachycephalism is due to Turkish, *i.e.*, Tartar blood, or is connected with an Arab descent, is an interesting point. The Hebrew skull is, I believe, usually brachycephalic; whether that of the cognate descendants of Ishmael is so or not, I am ignorant.

TABLE OF DIMENSIONS, PROPORTIONS, &c.—continued.

16	Longitudinal arc ..	14·6	23	Occipital transverse arc	11·6
17	Frontal " "	4·85			
18	Parietal " "	5·1	24	Latitudinal index	.716
19	Occipital " "	4·6	25	Altitudinal "	.743
20	Frontal transverse arc	11·65	26	Gnathic "	.30
21	Vertical transverse arc	12·1	27	Nasal "	.50
22	Parietal transverse arc	12·8	28	Orbital "	.81
			29	Cubic contents ..	78·5

OBSERVATIONS on the COLLECTION of SKULLS sent by CAPT. BURTON,
F.R.G.S., &c., to the BRITISH MUSEUM, SEPTEMBER, 1878. By
PROF. OWEN, C.B., F.R.S.

PALMYRA SKULLS.

OF the three skulls from Palmyra submitted to me by Capt. Burton:

One (A) includes the upper jaw and calvarium to near the lambdoidal suture. This indicates a long and narrow cranium; the profile and glabella are very similar to those of the Egyptian skull of the IVth Dynasty, figured in Vol. IV, Pl. XXI, of the "Journal of the Anthropological Institute;" but the frontal bone does not rise quite as high, and the cranium is narrower; the brain was less developed. The upper jaw is a little prognathic. The molar teeth offer the same proportions as in Fig. 2 of the Plate above cited.

The second skull (B) is of a female. The cranium is broader and the vertex higher in proportion to the length of the skull than in A. It is a small skull for a female, but the individual was adult, and had lost the right upper permanent mid-incisor before death, the socket being obliterated by absorption.

The third skull (C) is of a child; by the state of the dentition about four or five years old.

The racial characters of these skulls are those of the most ancient known Egyptians. They are not Australoid nor Papuan, nor Negroid, nor Mongolian; but of that somewhat negative type termed Indo-European, Aryan or Caucasian, of which the varieties are endless in relation to the manifold habitual exercises of the brain at the several phases of the Caucasian and Aryan civilisations.

EGYPTIAN SKULLS.

Of the series collected by Capt. Burton in the Necropolis of Ghizeh, D, E, and a few at Sakhara, F, not any of them deviate from the type figured (*loc. cit.*) ; in a degree supporting an inference as to racial distinction therefrom.

Not one is Australoid, Negroid, or Mongolian.

The skull D, marked "Pyramid, April 29th," shows a better cerebral development than the subject of Pl. XXI, Vol. IV ("Journal of Anthropological Institute.") It might have belonged to an individual of the intelligence and capacity of the subject of the famous statue in the Khedival Museum at Boulak, of which photographs were obtained by me, and afforded the subjects 1, 2, 3, of Pl. XX (*loc. cit.*).

The skull E might have been the subject of Pl. XXI (*loc. cit.*).

To note the minor diversities in proportions of breadth to length of cranium, development of nasal bones,* deviations from the flatness of the cheek-bones toward convexity, &c., &c., would be not more instructive than such annotations made on corresponding individual varieties which the "ossuarium" of a British grave yard might furnish.

NOVEMBER 26TH, 1878.

JOHN EVANS, Esq., D.C.L., F.R.S., President, in the Chair.

The minutes of the previous meeting were read and confirmed.

The Rev. JOHN ROBBINS, D.D., was announced as a member.

Mr. WORTHINGTON G. SMITH exhibited a series of flint implements from the Valley of the Lea.

Mr. E. W. BRABROOK read a paper by Prof. DANIEL WILSON, LLD., "On some American Illustrations of the Evolution of New Varieties of Men." This will appear in a future number of the transactions.

The following presents to the Library were announced, and thanks were ordered to be returned to the respective donors for the same :—

* See the extremes contrasted in skulls D and F.

FOR THE LIBRARY.

From the INSTITUTE.—The Canadian Journal. Vol. XV, No. 8.

From the INSTITUTION.—Journal of the Royal Institution of Cornwall, No. XX.

From the SOCIETY.—Journal and Proceedings of the Royal Society of New South Wales. Vol. XI.

From the AUTHOR.—Remarks on the Sedimentary Formation of New South Wales, 4th edition. By the Rev. W. B. Clarke, M.A., F.R.S.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, No. 4, 1878.

From SIR JOHN LUBBOCK, BART., M.P., D.C.L., F.R.S.—Plan of the Maori Mythology. By John White.

From the SOCIETY.—Transactions of the Asiatic Society of Japan. Vol. VI, Part 2.

From J. PARK HARRISON, Esq., M.A.—Essai de Classification des bruits Articules. By M. Condescen; Du Transformisme: Note sur le Squelette de Mention. By M. Le Marqnis de Nadaillac; Du Mouvement de la Population en France et en Europe. By Miss de Nadaillac; Life in the Southern Isles. By the Rev. W. Wyatt Gill.

From the RIGHT HON. LORD ARTHUR RUSSELL, M.P.—Parliamentary Papers relating to the Colony of Fiji, Slave Trade, China, Mauritius, and South Sea Islanders.

From the EDITOR.—Revue Internationale des Sciences, Nos. 46-47, 1878.

From the EDITOR.—Revue Scientifique, Nos. 20-21, 1878.

The following paper was read by the author:—

On the EVILS arising from the USE of HISTORICAL NATIONAL NAMES as SCIENTIFIC TERMS. By A. L. LEWIS, M.A.I.

PERHAPS there are few things that strike the Anthropologist more in reading the periodical literature of the time than the feeling shown by the writers that race problems have much to do with the every-day business of the world, together with the very imperfect understanding of the complex nature of those problems which is usually displayed, and the consequent ease with which they are sometimes settled on paper on the one hand, and the exaggerated importance and influence frequently attached to them on the other.

Thus, the French are usually written of as Gauls, and all their political and other difficulties are attributed to an inconstancy of mind, which is supposed to have marked the Gauls in the days of Cæsar. The Irish, again, are spoken of as Celts: a

denomination which is equivalent in some people's minds to all that is incomprehensible in human nature. In like manner all the inhabitants of the German Empire are called Teutons; the Russians and most of the inhabitants of South-eastern Europe are called Slaves; and the Italians and Spaniards are classed together as Latins; while the inhabitants of Great Britain and the United States are those Anglo-Saxons whose virtues have exercised so many journalistic pens, and are so great as to make the survival of police courts and prisons among them a mystery, and whose destiny is to exceed all other nations in power and glory.

The Anthropologist, however, knows full well not only that France, Germany, Italy, Spain, and the rest, are mere geographical and political expressions, and that each of these countries contains representatives of several different races, but that the mixture of races in most of these countries has been so great that representatives of different races may frequently be found in the same family, and through atavism, even among the children of the same parents.

But, though anthropological students have made this one step in advance of non-anthropological writers, they must not be supposed to have attained to perfect knowledge or agreement on all points. Thus, to go no further than our own islands, some maintain the Kymry to be a Celtic people, while others contend for their Teutonic origin and affinities; others, again, declare the Belge to have come from Gaul to Britain, while some hold that they were of British origin, and visited the Continent as successful invaders. Even the physical characteristics of Celts and Teutons are not unanimously agreed upon; while certain undefined Iberians or Atlanteans form another element of disturbance. As to the physical characteristics of these so-called races, it may indeed be doubted whether they ever will be settled; whether in the earliest dawn of the historic period the names of peoples did not, as now, signify political rather than ethnic differences: and whether the mixture of races, in Western Europe at least, was not almost as complete 2,000 years ago as it is now.

If this be so, it may be well for us further to consider whether we should not discard, once for all, the terms Kymric, Keltic, Iberian, Atlantean, Teutonic, Anglo-Saxon, Scandinavian, Sclavonic, and Latin, concerning which we have wrangled so long and so often, and start an entirely new nomenclature, which shall, among other advantages, be free from the prejudices by which individuals who imagine themselves to belong to any one of these peoples are occasionally guided when writing of their historic opponents.

To make my meaning clearer, I will now endeavour to describe three of the leading types of the inhabitants of these islands, specimens of which may also be found in greater or less numbers among nearly all the nations of Europe, namely:—

First.—A long-headed, dark-haired, but light-eyed type, often having eyes which in some lights look black, but are really light grey or blue.

Second.—A rather broad-headed, dark-haired, and black or brown-eyed type, which may be identified with the Silures of Tacitus. Whatever the affinities of this type may be, they certainly are not what we generally understand by "Teutonic" yet, if Mr. Motley's description be correct, the "Silent" William of Orange, whom he has depicted as the great champion of Teutonic freedom and virtue, was a man of this dark-haired dark-eyed type; while Charles and Philip of Spain, who in Mr. Motley's magnificent work appear as the incarnation of Latin and Celtic tyranny and evil, were, according to his description, very good representatives of the

Third, or Teutonic type, namely, men with light hair and eyes, and heads which in the pure type were probably broad rather than long.*

I do not for a moment contend that these three types are all that are to be found in these islands, much less in the Continent of Europe. I only point them out as varieties which may be readily recognised alike in the earliest pages of our history and at this very day in our streets, and it may be in this room.

It is no unusual thing to find representatives of any two of these types among the children of the same parents, while other children of those parents present a mixture of characteristics; but it is probable that if the whole population were sorted out into groups in accordance with their general resemblance to one or other of these types (or any others that might be established), and those groups were kept separate, they would in a few

* (William of Orange) "had a Spanish cast of features, dark, well chiselled, and symmetrical. His head was small and well placed upon his shoulders. His hair was dark brown, as were also his moustache and peaked beard. His forehead was lofty, spacious, and already prematurely engraved with the anxious lines of thought. His eyes were full brown, well opened, and expressive of profound reflection."

(Charles the Fifth) "his hair, once of a light colour, was now white with age
the eye was dark blue."

(Philip the Second) "was the living image of his father, having the same broad forehead and blue eyes, with the same aquiline but better proportioned nose his complexion was fair, his hair light and thin, his beard yellow, short, and pointed."

Motley's "Rise of the Dutch Republic," Chapter i. This capital instance is of great importance, showing, as it does, that the greatest historical writers commit as grave Anthropological errors as the most obscure anonymous journalists.

generations revert apparently to the pure and primitive type. I say apparently, because every event has a certain permanent influence, however small, and the mixtures of so many centuries have been so numerous, that though the effect of any one may be imperceptible, the effect of the whole must be very considerable.

Let us for a moment look at another, but very practical side of the working of numerous and continual mixtures of races. Thirty years are usually allowed for each generation, and therefore twenty-seven generations have existed since the Norman Conquest. Now a man of the present generation had two ancestors living in the last, four in the preceding one, and so on to the twenty-seventh, when he would have had no less than 67,108,864 ancestors living had not many of his ancestors of that age been common to his ancestors of succeeding ages; but if, in order to make ample allowance for this, we assume that each of us had, instead of 67,000,000, only 67,000 ancestors living at the time of the Norman Conquest, it is obvious that they probably comprised representatives of every race and nation then existing in the British Isles, if not in the whole of Europe; it is also obvious that the chances should be at least 67,000 to 1 against our reproducing any specially distinctive characteristic of body or mind of any one of our ancestors of that period, so that if any one of us could trace our descent in the direct male line to some one who "came in with the Conqueror," it is more than likely that instead of resembling his Norman ancestor in any way he might by the operation of atavism be an unimproved reproduction of some obscure Saxon serf of the period, while the man who boasts that his ancestors, whether British chiefs or Saxon thanes, were "at home when the Conqueror called," may himself, more likely than not, be a bad copy of some unknown man-at-arms who followed the Norman duke from the continent. While therefore the anthropologist must of necessity be a believer in "blood" and in the effects of race—that particular form of belief in blood which concerns itself solely with the direct ancestor in the male line (when he can be found)—and ignores the thousands of ancestors in female lines who have each a possible share in the formation of the individual, cannot be other than ridiculous to him. In other words, anthropology teaches us that, in mixed communities at least, every man must be judged by what he himself is, both in body and mind, and not by what any particular alleged ancestor of his may be supposed to have been.

With regard to mixtures of very different races, such as Europeans and Negroes, it has often been said that the children have the bad qualities of both races and the good qualities of neither, while on the other hand it has been often said of the

mixed European nations that the more mixed a nation is the greater are the qualities which it displays. But may not this apparent anomaly be due to the fact that a mixed nation commands the services of individuals of the different races of which it is composed, in the different departments to which they are best fitted, and to which, by a sort of natural selection, they make their way, rather than to any virtue or even practical effect of the mixture itself?

It may here be remarked, in passing, that the dark-haired but light-eyed type, the first which I mentioned, and which is probably the true Celtic type, is very generally confounded with the light-haired and light-eyed Teutonic type, and some great names have even been found to support the view that the Celts and Teutons were to all intents and purposes the same people, which indeed may be correct to this extent: that many tribes or political divisions 2,000 years ago contained representatives of both types, and that men of each of these types spoke the language belonging originally to men of the other type. Anyone may however with a little observation see that this dark-haired but light-eyed type is not the result of mixture, but a separate type, having other differences which might doubtless by study of modern skulls known to belong to it be recognised in skulls of ancient date and form a new key to unlock the mysteries of our burial mounds. Dr. Beddoe, writing on the Celts of Ireland ("Journal of Anthropology," II), says "there is no exception to the rule that light eyes greatly preponderate, and that the hair tends to be very much darker than the eyes proportionately;" and again, "it is pretty clear, however, that the Celtic Gaelic type as usually represented" (on monuments) "was long-faced and long-headed, and that it differed notably from both the Iberian and the Germanic." Dr. Beddoe's admirable statistics go also to show that while only one in three of the inhabitants of England and Wales have dark eyes, three out of four have dark hair, and that in Cumberland (a Celtic county) in particular, only twenty-nine out of every hundred people have dark eyes, but eighty out of the hundred have dark hair; contrasting very forcibly with Teutonic Lincoln, where while the same number (twenty-nine out of every hundred) have dark eyes, only forty-six out of every hundred have dark hair. When we compare these statistics with the history of the counties, we shall, I think, hardly escape the conclusion that they are mainly peopled by different and not practically identical types.

Many serious errors have arisen from attaching too much importance to language as a test of race, but Anthropologists know very well that community of language is not a proof of

community of race, but only of association or contact of the various races by whom any given language is spoken. Language as a test of race is of little more value than tradition or religious or other customs, and, though it sometimes happens that all these point in the same direction, it sometimes also happens that they do not; all should have their due weight with other circumstances in deciding under what government this or that locality should be placed, but it is to be feared that language has in this matter been given an undue preference, and that several recent wars which have to some extent been waged on professedly ethnic grounds have, from an anthropological point of view, led to as much error as they have attempted to redress.

Thus, with regard to the unification of Italy, the anthropologist of all other men may truly say, "Italy is but a geographical expression." Geography, language, and religion no doubt favour the placing of Italy under one government, but no anthropologist would venture to say that all the Italians were of one race.

So too with the Germans, who are the strongest supporters of what may be called the philological school of anthropology. As in commerce large establishments are found to be the most economical and remunerative, so in government it is found that large nations offer large advantages, and the days of small nations and small establishments, much as we may for some reasons regret it, seem to be numbered; on this ground the unification of Germany may be regarded as a gain, but the suggestion of the national song, "Was ist der Deutschen Vaterland" that all countries where German is spoken are inhabited by the same race is shown to be entirely fallacious by the statistics of Professor Virchow.*

According to Professor Virchow an investigation of the schools in the German Empire showed that 33 per cent. (about one third of the children) had light eyes and hair; 13 per cent. (about one eighth) had brown eyes and hair, these being mostly in the South, while 54 per cent. (or more than half) had eyes and hair of different colours. Now it is admitted by Professor Virchow, as well as by Professor Broca and others, that hair darkens as its owner grows older, and it is therefore probable that of this fifty-four per cent. of "mixed" children a large number would belong to the dark-haired but light-eyed type, about which I have already said so much, and this would be in accordance with the fact that the skulls of Northern Germany are largely dolichocephalic. But if it should ultimately be found that more than half the inhabitants of Northern Germany

* "Proceedings of International Congress, Buda-Pesth. 1876."

belong to other races, what will be the value of much that has been said and written for and against the great Teutonic race ?

The recent war, again, waged professedly for the liberation and unification of the Sclavonic race, leads us to ask, what are the Sclaves like ? Dr. Beddoe tells us that they are people "of good stature and fair complexions, not so remarkable in these respects as the genuine Gothic races, as compared with whom they were evidently deficient in military qualities. Agricultural and pacific in their habits, as invaders they were remarkable for their ferocity and cruelty. That kind of volatile good humour which was consistent with and passed suddenly and almost causelessly into extreme savagery, and which was attributed now-a-days to the Cossacks, appeared to have characterised the ancient Sclaves, and the tortures and massacres which heralded their permanent settlement south of the Danube, might in part account for the fact that we found their own type predominating there to so great an extent. They gradually exterminated or extirpated the prior inhabitants, whereas the Goths or Germans more often established themselves as a ruling caste. So far as he had seen or heard, blue or grey eyes, and brown hair, predominated over darker hues, and he had seen flaxen hair even among the Bulgarians, who were generally a darker race."* Mr. Hodges tells us in "*Anthropologia*," that the Sclaves vary, some having dark eyes and hair, and others, especially the northern Russians, flaxen, light brown, or red hair, which is simply saying in other words what I have maintained throughout this paper : that political and even linguistic divisions are quite different from those prescribed by physical characteristics. A correspondent of the *Standard*, writing professedly from Bucharest, on the 14th October, 1877, said of the Russian soldier :—"In an empire so vast as the Russian, peopled by so many races, one would expect to see a great variety of types. A private of the Archangelgorodskipouk from the borders of the Arctic Circle, might be supposed to differ exceedingly from the German of the Baltic provinces, or the townsman of Odessa, and immense differences there are, doubtless, but not in face, or build, or fighting quality ; the Don Cossack is a type very marked, so of course is the Circassian and the Tartar, but the infantry-men seem as like as brothers. Nearly all are fair, with broad short features and yellow moustache, as a late ornament of manhood, and whole companies of stalwart peasants, averaging twenty-five years old, can show but a dozen beards among them. The Russian soldier is certainly plain, but one rarely sees the class of feature traditionally attributed to

* "Daily Chronicle," report of Paper read before Anthropological Institute, 1878 (not yet published by authority).

him; his eyes are not noticeably small, nor tight, nor wide-apart; his nostrils are not spread, nor his mouth prognathous to a remarkable extent; the character of his ugliness is quite European, and in any English regiment one sees a score of faces, in any German regiment, hundreds, that exactly reproduce the Russian type." It would seem, therefore, that while a great number of German-speaking inhabitants of the German Empire probably belong to non-Teutonic races, there is no practical difference, except that of language, between the other German-speaking inhabitants of the German Empire, who are looked upon as more purely Teutonic, and a very large number of Russian-speaking inhabitants of the Russian Empire—that the man, who by country and language is classed as a Slave, is not to be distinguished by any other means from some other man, who by country and language is classed as a Teuton, or even as an Anglo-Saxon.

I will now quote from this correspondent a few words which support Dr. Beddoe as already quoted, in showing how the frank, careless, good-humour, popularly attributed to men of this physical type may be reconciled with the black deeds too surely recorded against them in history:—"He" [the Russian soldier] "is perfectly ignorant, very stupid, very trusting in people whom he knows, and very suspicious of a stranger

the world may be searched vainly to show men so brave and yet so peaceful, so resolute and so long-suffering . . . but whilst giving the Russian soldier credit for gentleness and good-temper, he who watches him may doubt whether listlessness and want of moral activity be not truer causes of his excellent behaviour; Muscovite amiability will not endure much provocation; the man who will show such extraordinary temper where others would turn quarrelsome, is roused to pitiless fury at a certain point . . . So, again, the Russ is generous under certain conditions only; he will distribute anything he does not want, but no one is more pitilessly selfish when his own necessities are pressing. . . . Those who saw the maddened fury of the troops after the battle of Nicopolis, the senseless rage with which they stabbed at knapsacks, blankets, anything that recalled the foe, would ask no testimony to believe that the wounded were massacred that day—they certainly were; but, when the passion of the fight has calmed, and the Russian soldier is himself again, nobody is more pleased than he to perform a little service for a prisoner."

To revert to the point from which I started. I may now give an instance or two from the daily papers, showing the ease with which they make anthropological mistakes, which would be laughable, were it not sought by their means to promote

or to justify some important and possibly disastrous public action.

Some weeks ago, one of our evening instructors, in the course of a lengthy article, stated that while George I had only one drop in thirty-two of "British blood," the Prince of Wales has only one in 2,028, the conclusion being that "when we consider this, we need not wonder if the British Nation should seem of less worth than the Empire of India," &c., &c.* The fallacy here is evidently in the use of the term "British blood," since most of the assumed possessors of that article are descended from people who came from the continent at a period more or less remote, and are of all manner of different races, but have in time become identified in interests and feelings with their adopted country, and in this way we can see that the Prince of Wales would be, as he undoubtedly is, a far better "Briton" than George I, our evening instructor to the contrary notwithstanding. The error is the more remarkable, as the same author informs us that "Americans are Britons yet by blood," or in other words, a few million German or other workmen emigrating to the United States become "Britons by blood," but a German prince emigrating to England remains a German, as do all his descendants.

Some little while ago, one of our morning instructors informed us that the word "insane," was "sound Saxon."† This astonishing conclusion was probably attained thus:—The Saxons, whoever they were, were mythically supposed to have used exceedingly plain and unmistakable language; but "insane" is an exceedingly plain and unmistakable word, and therefore "insane" is Saxon. This incident is a trivial one, but it shows the desirability of abandoning designations which in the course of centuries have been used in so many senses, and have incurred so many popular prejudices, as to have lost whatever meaning they originally possessed, and to have become not only useless, but misleading.

In conclusion, the principal propositions which I have endeavoured to establish are:—

1. That there were, at the first population of Europe, certain primitive races, of which I have attempted to describe three.
2. That these races are so mixed at the present day that representatives of them appear not only in most European nations, but in the same families, and among children of the same parents.
3. That, notwithstanding this mixture, and the effects which

* "The King's Own War," "Echo," 28th May, 1878.

† The "Daily News," in an article on Lord Carnarvon's reply to a deputation to the Colonial Office, about December, 1877.

it must permanently have, racial characters display an astonishing permanence.

4. That this mixture being so slow in its effects, and yet having become so general, has probably been at work for a very great length of time; so great, that the peoples to whom the earliest history of Europe introduces us, were probably nearly as much mixed as those of the present day.

5. That it is desirable to discontinue the use of the political names of those peoples as ethnic names, and to employ others based on the physical characteristics of the individual.

6. That while physical characteristics are the only basis for a true division into races, yet in any practical application of this division, the influence upon individuals of different races of a community of language, custom, history, or tradition, must not be lost sight of, although these things do not prove community of race, but only the contact at some time or other of the races to whom they are now common.

Finally, I would ask whether the time has not arrived when committees should be appointed by the various Anthropological Societies of Europe to define the leading types of the inhabitants of their respective countries, and ultimately to form an International Commission for the collation of their respective labours, and for giving to the types upon which they may agree a precise definition and nomenclature, free from the objections which may be and have been urged against nearly all the terms now in use. When this has been accomplished, and not before, we shall be entitled to consider that our studies have begun to crystallise into a science as worthy of the name as astronomy or geology.

DISCUSSION.

Mr. TYLOR agreed that the present designations of races often tend to perplexing results. As an instance, he cited the name of Kelts applied to the Bretons and Irish, unlike in many respects, and among others in temperament, the Irish being the received examples of a witty, vivacious, volatile race, while the heavy and melancholy Bretons were the exact opposite. Mr. Tylor thought that at present it often caused less mistake to follow the national names given by historians and geographers, than to use race-names. He recommended Mr. Lewis to continue his line of work by collecting a complete set of data, so as to make the classification of peoples possible to a greater extent than can at present be done.

Mr. R. B. MARTIN thought that the inquiry suggested by Mr. Tylor should include the change that has taken place in national characteristics. In surveying the course of history, it must be evident that a considerable variation has taken place in the estimate

in which different peoples have been held. In the time of the Romans the inhabitants of Italy were held to be of a stern, solid type, very different from the gay, mercurial Italians of to-day, and the same observation would apply to many other countries.

Dr. ALLEN THOMSON remarked that the same difficulties might be found in reforming the nomenclature of ethnology as in other branches of natural science. Names of races, as of natural objects, are handed down to us as having been appropriate at the time of their first adoption, and they often turn out not to be the best suited for the objects to which they are applied. But having come into general use, their entire change requires very serious consideration. According to the plan suggested by Mr. Lewis, it could only be after an extended and exhaustive inquiry into the whole range of ethnology by an international committee that any general change in the nomenclature could be expected, and it may be doubted if the changes would be satisfactory or meet with general approval. He would not deny the desirability of attempting to improve the nomenclature by rendering the names of tribes in any geographical districts as nearly as possible indicative of the races to which they may be traced, but it will probably be a safer plan to endeavour to check error in detail, and especially to define more carefully the meaning of the names employed, than to attempt an entirely new system.

After some remarks from the PRESIDENT and Mr. PARK HARRISON, Mr. LEWIS said in reply that the great objection to the present names was that they were not merely inaccurate, but led to errors fraught with the gravest consequences to the whole human race, and he feared the only way to reform them was to improve them off the face of the earth altogether. What he wanted was to have certain abstract types carefully considered and defined, without regard to nationality, which types, to avoid any questions of a political or personal nature, might be known by numbers or letters rather than names. This having been done, an anthropological census might be taken of any country or district, and the relative number of each type to be found in it ascertained, and they would then have definite materials to work upon. This would, no doubt, require considerable combined effort, but, when done, would be satisfactory. The Bretons, cited by Mr. Tylor, certainly included two types, those of the south being very different in appearance from those of the north, and the inhabitants of Italy, cited by Mr. Martin, had certainly been very mixed even in the earliest historic period; it was quite probable that the same race might, under different circumstances, be swayed by different emotions, but the rough-and-ready description of a whole political nation, comprising individuals of various types, as vivacious and volatile, heavy and melancholy, stern and solid, or gay and mercurial, was, in his opinion, more likely to be wrong than right.



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ANTHROPOLOGICAL MISCELLANEA.

THE PEOPLE INHABITING THE INTERIOR OF THE GREAT NICOBAR ISLAND.

LITTLE is at present known of the nature or affinities of these people; in fact, their actual existence is vouched for by little more than local hearsay, but such reports as have been received, have almost universally led to the conclusion that they formed part of a Negrito stock, allied to either the Andamanese or the Semangs of the Malay Peninsula, an opinion which I also expressed (Vol. vi, p. 212). Mon. de Roëpstorff having however given the result of his visit to this island, and his interview with one of these people, as proving that they were of "Mongolian" type, more uncertainty arose as to their identification. I had some few months ago the pleasure of an interview with General Man, late Governor of the Andaman Islands, from whom I sought information on the subject. General Man's testimony is very strong as to the Negrito origin. He visited the Great Nicobar in a vessel which had on board a number of Andamanese people. These were immediately recognised by the Nicobarese as resembling the inhabitants dwelling in the interior of their own island.

The Journal of our Institute having, during the last few years, contained many papers both on the inhabitants of the Andaman and Nicobar Islands, it is satisfactory to find that the plates illustrative of General Lane Fox's paper on a Collection of Andamanese and Nicobarese objects (Vol. vii, p. 434), have been the subject of some interesting comparison in the "American Naturalist" (Vol. xii, p. 697); Mr. F. H. Cushing, of the National Museum, stating that the harpoon-arrows common to the Alaska Eskimo "entirely resemble the formidable fishing spears of the Andaman islanders."

W. L. DISTANT.
